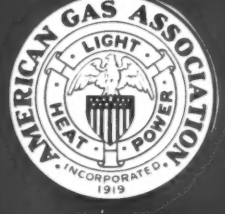
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The Committee has collected a tremendous amount of very valuable data. I think it is very well presented and in such form that it will be highly useful to the engineers of the industry.

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The book covers a real need of the industry.

—CHAS. R. LOCKE, Supt. Coke Plant, Chicago By-Product Coke Co.

The book is worthy of the great traditions of the American Gas Association. It is important to note the very high standard which it obtains.

—*Gas Journal*, London

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—L. J. WILLIEN, Chief Gas Engr. Public Utility Engineering and Service Corp.

I have nothing to offer except congratulations for the excellent quality and scope of the treatment. I believe this volume will be the most useful contribution to the gas industry's technical information which has been published for some time.

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American Gas Association MONTHLY

CONTENTS FOR JANUARY 1941

The gas industry's New Year's resolution should be to maintain the pace set in 1940 when the industry reached new high levels of attainment in every field. National surveys show that gas gained ground in every respect—in engineering achievement, in sales ability, and in employee morale—as well as in sales, revenue and number of new customers served. . . . The amazing growth of the use of gas for winter air conditioning stemmed from more aggressive promotion and improved appliances. This latter phase of development is reviewed in this issue by A. G. A. engineers who tell why the great swing to gas has taken place. . . . Human achievement can be vastly enhanced and encouraged by proper training, Mr. Webber points out in a thorough-going analysis of a sound office training program. His paper on this subject created such a furore at the national accounting conference last month that it was re-read by popular demand. . . . While one Mr. Smith tells how the Houston gas system reached its customers' hearts "through the Garden Gate," another Mr. Smith reports on a grimmer subject, namely, the great development in gas-fired technique and equipment in the metal treating field since the first World War.

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Producer plant of the New England Coke Company, Everett, Mass., photograph by Albert Crownfield, Jr.—another prize-winning picture in the competition for A. G. A. MONTHLY frontispiece illustrations.

American Gas Association MONTHLY

JAMES M. BEALL, *Editor*

A RECORD GAS YEAR

. . . . Sales and Service Reach New High in 1940

WITH the start of the New Year, the gas industry has taken stock of its assets, reviewed its achievements in 1940 and faces ahead with confidence in its ability and vitality. Despite chaotic world conditions, the urgent problems of national defense and other uncertain factors, there is ample cause for optimism. The year-end figures cited below show that the gas industry is at an all-time high in the extent of its sales and service. These facts coupled with the broad-visioned and aggressive promotional program laid out for the industry in 1941, augur even greater progress in the coming year.

In 1940, manufactured and natural gas companies, supplying towns and cities with a population of more than 84,000,000, served a total of 17,980,300 customers, representing the largest number of consumers ever connected to the mains of the industry. This was an increase of 481,000 over the year 1939. Of these, 10,232,900 were served by the manufactured gas industry and the remaining 7,747,400 were served by the natural gas industry.

•

Revenues of the entire industry, both manufactured and natural, aggregated $873,358,000, a gain of 7.3 per cent over the preceding year of 1939. The natural gas companies grossed $491,276,000, a gain of 9.4% for the year, while revenues of the manufactured gas companies were $382,082,000, as compared with $365,150,000 in 1939, an increase of 4.6 per cent.

Sales of manufactured gas for domestic uses, such as cooking, refrigeration, house heating, water heating, etc., amounted to 267,438,000,000 cubic feet, an increase of 7.3 per cent for the year. House heating sales showed a gain of 25.1 per cent. The sales of natural gas for domestic uses registered a pronounced upturn, rising from 372,971,000,000 cubic feet in 1939 to 419,354,000,000 cubic feet in 1940, a gain of 12.4 per cent.

Sales of natural gas for industrial purposes rose from 654,662,000,000 cubic feet in 1939 to 719,776,000,000 cubic feet in 1940, an increase of 9.9%. Sales of manufactured gas for industrial and commercial purposes showed an upturn, rising from 111,078,000,000 cubic feet in 1939 to 119,624,000,000 cubic feet in 1940, an increase of 7.7%.

Preliminary estimates indicate that the total production of natural gas in 1940, including amounts used in the manufacture of carbon black and for field purposes, reached a total of 2,600,000,000,000 cubic feet. Approximately 183 billion cubic feet of natural gas were used as fuel for generating electric power in 1940.

•

Total sale of gas ranges during 1940 was 1,600,000 units—the highest record in the history of the industry, according to the Association of Gas Appliance and Equipment Manufacturers. The sale of Certified Performance Gas Ranges inaugurated in August, 1938, has continued to increase to the point where this type of range, tested and approved for unexcelled cooking performance, represents a substantial portion of total range sales. More than 500,000 automatic gas water heaters were sold during 1940.

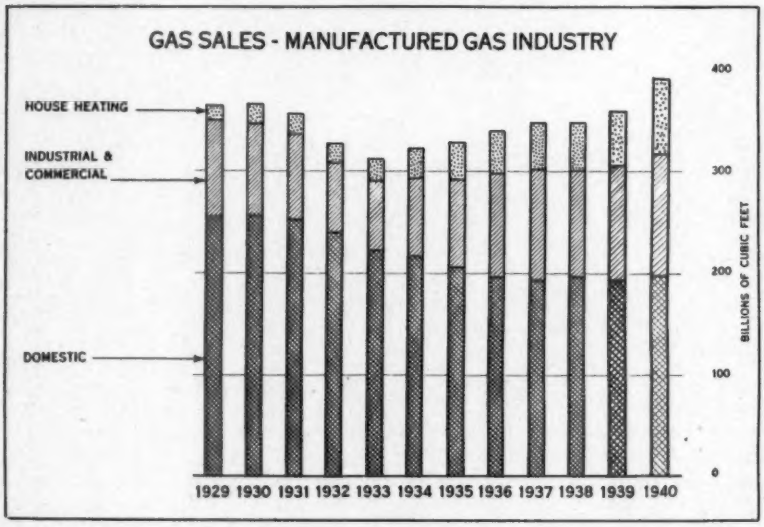
The outstanding engineering achievement of the year was the installation in Cleveland, Ohio, of a new plant which reduces natural gas to a liquid state at a temperature of 250° below zero and stores it in special containers from which it is later withdrawn in its original form and fed into distribution mains. Some of the advantages foreseen in this novel type of plant are a substantial saving in storage facilities, the ready availability of a gas supply in case of emergencies, and the ability to maintain uninterrupted service during severe peak demands. The new plant has incited great interest not alone within the gas industry, but in the engineering and chemical professions as well.

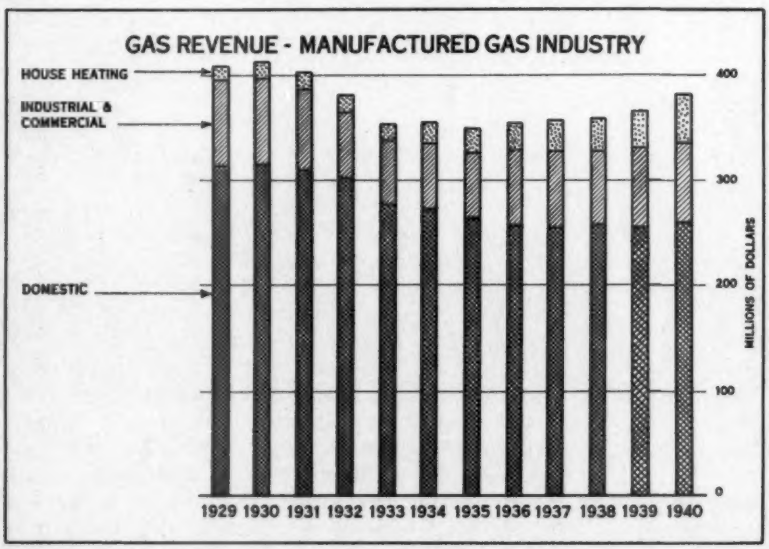
Gas companies continued to inaugurate more favorable rates for house-heating through central plant burners and equipment. It is estimated that the total number of gas central house-heating installations connected to the lines of all United States gas companies in 1940 amounted to

MANUFACTURED GAS INDUSTRY*

	1940	1939	Per Cent Change
CUSTOMERS			
Domestic	9,462,100	9,325,000	+ 1.5
House Heating	307,400	264,000	+16.4
Industrial & Commercial	454,000	447,000	+ 1.6
Miscellaneous	9,400	9,000	.....
Total	10,232,900	10,045,000	+ 1.9
GAS SALES (MCF)			
Domestic	197,539,000	193,455,000	+ 2.1
House Heating	69,899,000	55,883,000	+25.1
Industrial & Commercial	119,624,000	111,078,000	+ 7.7
Miscellaneous	2,270,000	1,993,000	.....
Total	389,332,000	362,409,000	+ 7.4
REVENUE (Dollars)			
Domestic	$260,063,000	$255,131,000	+ 1.9
House Heating	44,240,000	35,930,000	+23.1
Industrial & Commercial	76,356,000	72,774,000	+ 4.9
Miscellaneous	1,423,000	1,315,000	.....
Total	$382,082,000	$365,150,000	+ 4.6

* Preliminary estimates by the Statistical Department, American Gas Association.





800,000. In addition there were approximately 1,800,000 dwellings heated by unit heaters, space heaters, floor furnaces, etc., giving a total of more than 2,600,000 homes in the United States that are heated by gas.

In recent years, the gas industry has supplemented the substantial amount of research conducted by gas appliance manufacturers by a vigorous and well-planned program of research and development through the American Gas Association. Even better and more efficient gas equipment will shortly be available, which should serve to enhance the competitive position of gas.

Gas in National Defense

The gas industry is taking a leading part in supplying the vast industrial heating needs of factories and mills that are producing the thousands of parts for equipment and machines necessary in the National Defense program. For hardening the small and intricate parts of machine guns to the final heat treatment of the largest guns, specially designed gas furnaces are speeding production at an ever increasing pace. In the navy yards, some of the largest industrial furnaces ever built are annealing fully assembled gun turrets with gas. Equipment which has been developed for peace-time uses during the last decade through cooperative research and engineering by the gas utilities and leading equipment manufacturers under the sponsorship of the American Gas Association is rapidly being put to work to speed up production in war industries.

Industry and business used about 55% more gas during 1940 than during the boom period of 1929. It is estimated that the normal use of industrial and commercial gas during 1941 will be at least 10% greater than 1940 and supplementing this will be the great quantities of gas used for purely defense production in the United States and Canada.

New streamlined gas equipment for restaurants, hotels, clubs and bakeries is being installed in increasing quantities and is contributing materially to the modernization of all kinds of eating places. Food preparation technique is changing rapidly and chefs are finding that the newly designed specialized gas equipment enables them to adopt

with ease the newer cooking methods. All restaurant foods used to be cooked on heavy duty ranges and in range ovens. While the range is still the main cooking appliance, it is being supplemented by such special gas appliances as deep fat fryers, thermostatically controlled grills, individual deck baking and roasting ovens, radiant ceramic broilers, various types of coffee makers and a host of other special gas devices. The newer needs for speed and quality in quantity cookery will see this movement toward specialized gas appliances rapidly accelerated during 1941.

The attitude of American housewives toward gas fuel and the modern gas range has undergone a marked improvement over the last five years during which the industry has sponsored a national advertising program, a survey conducted near the close of the year reveals.

Advertising Reaches 20 Million

During the current year, full-page advertisements on the modern gas range and on the four main household uses of gas fuel have appeared in national magazines with a circulation of nearly 20,000,000. In addition, sixteen magazines serving the trade and professional fields have carried advertising promoting the industrial use of gas.

Augmented by local newspaper advertising, the national campaign has been an influential factor in increasing sales of gas and modern gas-using equipment.

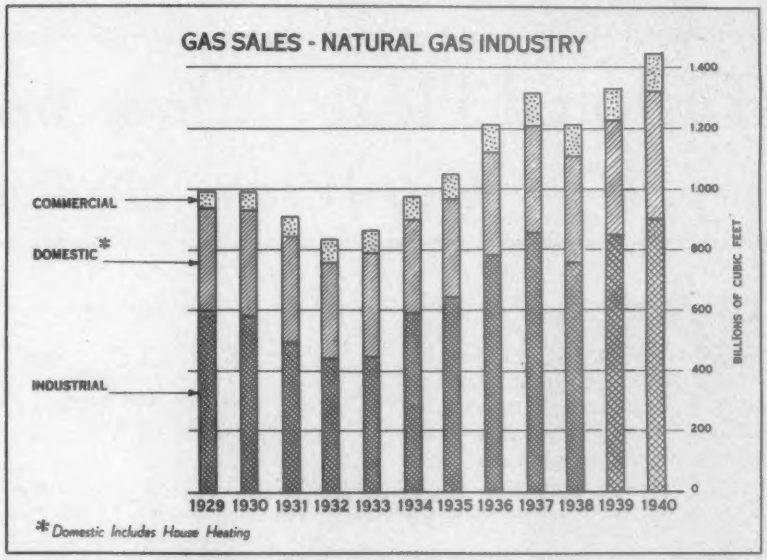
The gas industry has continued its activities to promote the use of "Gas for the 4 Big Jobs" in the homes of the nation. During 1939, gas utilities reported that of the new homes constructed in their territories, 91% used gas for cooking, 77% for water heating, 62% for house-heating and 12% for refrigeration. Preliminary figures for the year 1940 indicate further increases in each of these uses.

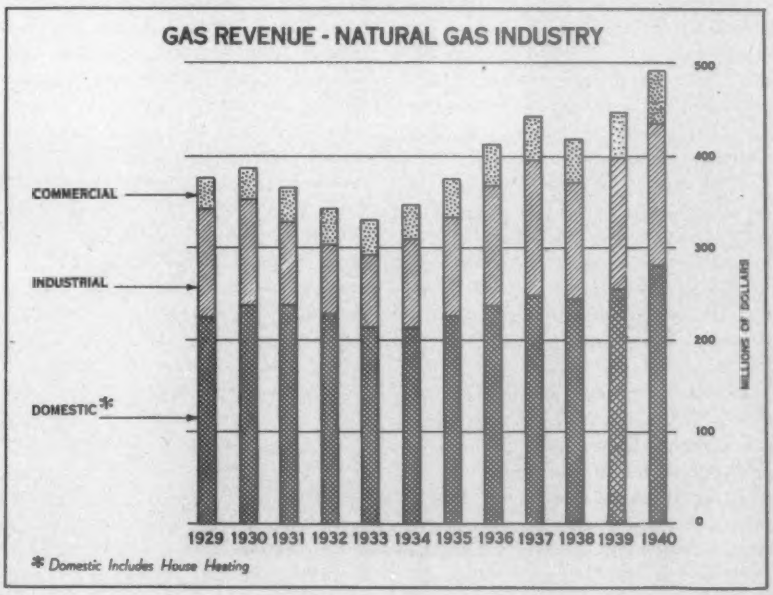
An impressive record of gas service has been made in the housing projects completed by various governmental departments and bureaus during 1940 and the industry is supplying gas for many services in numerous cantonments and defense housing projects throughout the nation.

NATURAL GAS INDUSTRY*

	1940	*1939*	*Per Cent Change*
CUSTOMERS			
Domestic (Incl. House Heating)	7,140,500	6,870,000	+ 3.9
Commercial	562,100	541,000	+ 3.9
Industrial	44,800	43,000	+ 4.2
Total	7,747,400	7,454,000	+ 3.9
GAS SALES (MCF)			
Domestic (Incl. House Heating)	419,354,000	372,971,000	+12.4
Commercial	122,987,000	109,314,000	+12.5
Industrial	719,776,000	654,662,000	+ 9.9
Electric Generation	182,546,000	191,296,000	— 4.6
Total Ind. & Elec. Generation	902,322,000	845,958,000	+ 6.7
Total	1,444,663,000	1,328,243,000	+ 8.8
REVENUE (Dollars)			
Domestic (Incl. House Heating)	$281,467,000	$255,805,000	+10.0
Commercial	55,942,000	50,362,000	+11.1
Industrial & Elec. Generation	153,867,000	142,692,000	+ 7.8
Total	$491,276,000	$448,859,000	+ 9.4

* Preliminary estimates by the Statistical Department, American Gas Association.





Two views of the central heating appliance testing section of the A. G. A. Testing Laboratories at Cleveland, Ohio

Tailored Heat . . . *from Streamlined Gas Winter Air Conditioning Units*

By F. E. VANDAVEER
and
W. B. KIRK

American Gas Association Testing Laboratories

EVER since the turn of the century when gas began to take its rightful place as a domestic fuel, there has been an accelerating trend toward its use for many heating purposes. Gas has become accepted generally as the most convenient and economical means for accomplishing many tasks in the home, as well as in various industrial fields.

When it is realized that approximately two thirds of the increasing national gas load is utilized in domestic appliances, of which house heating applications represent by far the most rapidly growing development, the importance of new equipment in this field warrants throwing the spotlight on it. Much credit for this progress is due appliance manufacturers in providing preferred equipment in the face of active competition, as well as to the utilities for so aggressively and successfully promoting gas for house heating.

Recent innovations in the field of central house heating and winter air conditioning deserve special attention. Evidence of the expanding popularity of gas-fired central heating equipment, as a result of these innovations, is clearly demonstrated both by national sales records and by various data obtained from the files of the American Gas Association Testing Laboratories.

Latest statistics available from the U. S. Census of Manufacturers reveal that annual national sales have increased from 30,000 gas boilers and furnaces in 1929, to 105,000 in 1939. During the first 8 months of 1940, sales increased 47% over those recorded for the same period in 1939. Of even greater significance is the fact that 65% of all new homes constructed during 1939 were equipped with gas-fired house heating units. In communities supplied with natural gas this percentage jumped to 90. Although complete data for 1940 are not available at this time, there is good reason to believe that still further increases have been made.

As practically all central heating gas appliances offered for sale in the United States and Canada are first tested and approved by the A. G. A. Testing Laboratories, pertinent facts obtained from their records also serve as an excellent indication of what is happening in the field of house heating. During the first full year (1928) after approval requirements for central gas heating units became effective, approximately 50 models were tested and approved. Since then the number of different models tested and approved each year has increased steadily so that in the past year there was a total of 824. Today more than 2500 new and different models are listed for 139 manufacturers.

If all common variations obtainable with each model were included in the above count, the total number of fur-

A modern gas winter air conditioning unit

naces and boilers available to meet individual needs of consumers would be rather staggering. The most noticeable increase in development occurred in 1938 when 72% more testing was done than in previous years. Each year since then has recorded further substantial increases. Practically every manufacturer of central heating appliances for any type of fuel has developed gas-fired units because of the insistent demand for them.

Tremendous Swing to Gas

Why has this tremendous swing to gas taken place? What revolutionary improvements have been made in the last decade to elevate gas heating from comparative insignificance to its present position as a major industry? Obviously, such rapid strides in popularity have resulted primarily through refinements and modernization which have produced completely automatic, economically operated, and inherently clean units.

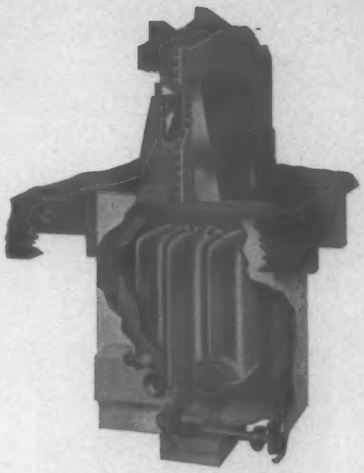
In keeping with the popular trend for simple compact design, excessive bulk has been eliminated to give a sleek streamlined appearance which emphasizes handsome and durable finishes. Operating controls, other than wall thermostats, have been concealed within jacket panels. Even draft hoods on many appliances are built in as integral parts so that they are either partly or completely hidden from casual observation.

These smooth, clean exteriors are now dressed in beautifully colored finishes which are variegated to blend harmoniously with any type of background. Any color or combination of colors within reason is available. Types of finishes are also varied to suit individual needs. For those who desire smooth, polished surfaces, highly durable baked enamel or glossy paint finishes are employed. For depth of color tone "crackle" paints are used. Many appliances are trimmed with chromium or equally decorative materials. Although the gas appliance industry cannot claim priority for developing these types of finishes, it has pioneered the movement of applying attractive exteriors to central heating and winter air conditioning units.

Thousands of home owners have been encouraged to reclaim their basements as dens, recreation rooms, or work shops by the knowledge that unsightly or bulky furnaces are extinct and that newer models will add beauty as well as comfort to these rooms and will not create dirt nor monopolize space.

Units More Compact

Contemporary models are usually one third to one half the size of their predecessors of a few years ago. A typical gravity type furnace of the vintage of 1932 required approximately 67 cubic feet (55½ x 38 x 55 inches) of space. Newer models of the same gravity unit and same input rating today require 29 cubic feet (40½ x 30¼ x 41 inches) or less than half the previous space requirements. Units of the forced air type, which fulfill similar heating needs, require as little as 20 cubic feet.



Double register floor furnace especially adapted to small heating loads

Boilers are also smaller. Vest-pocket editions requiring only 4.87 cubic feet of space will adequately heat an ordinary 5-room house, whereas eight years

A compact closet-type forced-air furnace

Left—A space- and money-saving installation of gas winter air conditioning unit in an attic. Right—A streamlined installation of gas house heating and water heating equipment in an attractive basement

ago a similar capacity boiler required 10.46 cubic feet. In addition to obviating the necessity for fuel storage space, warm air ducts and radiation for gas units require a negligible amount of room for accomplishing their purpose.

Reduction in size is only part of the response to consumers' needs for compact units in homes of the future. Types of space requirements have also been anticipated by variegated shapes.

A well designed gas boiler which features accurate controls and efficient performance

Some furnaces are tall and slender like a grandfather clock and will fit into small closets or rooms where floor space is at a premium. Others are low and long like a kitchen utility cabinet to satisfy low height requirements.

For those homes where floor space problems are acute there are special units having very low, rectangular-shaped casings which may be suspended from the ceiling of a basement or others which may be installed in attics, and thereby leave valuable floor space entirely free from other purposes. Another type of central heating appliance resembles a floor furnace in appearance and is similarly suspended, but has warm air duct connections for several registers. Needless to say, there are modern furnaces designed for installation on the basement floor or ceiling, in the floor or in small rooms on the first or second floor, or in the attic. The preferred location, however, is still in the basement. Forced-draft venting is being employed in some instances, permitting discharge of flue gases from any convenient location in the house. In like manner, plenty of heated air may be carried to any part of the house.

In addition to setting new standards for beauty and space requirements, central heating gas appliances have been improved to a marked degree in performance characteristics. Thermal efficiencies of warm-air furnaces equipped with blowers have been increased by as much as 15% over those available several years ago. Gravity and floor furnace efficiencies have been increased approximately 7%. Boiler efficiencies on the average have also been improved so that it can be claimed that central heating gas appliances have closely approached the practical ultimate value for heat transfer efficiency.

Corrosion Factor Solved

Studies of corrosion problems have led to a more widespread use of corrosion-resistant materials, better grade steel, more resistant joints, and in many cases, heavier materials for constructing heating elements to insure longer life. Heating elements are being designed to provide for even heat distribution over heat transfer surfaces, thereby eliminating hot and cold areas where undue scaling and condensation might occur. Further precautions against collection and concentration of condensates are being observed to preclude possible traps where moisture might collect in heating elements.

Burner and fan operating characteristics have been sufficiently improved to warrant a study, for the American Gas Association requirements committees, of noise limitation using sound level meters and thereby emphasize still further silence of operation—another fundamental advantage of gas. Although slight noises of burner ignition and extinction have been noticeable in the past with some types of burners when operated with a fast-burning gas, these characteristics are rapidly being eliminated. Blower assemblies in warm-air units are usually mounted with springs or on rubber to provide "floating power" and reduce vibration effects.

Controls operating the pilots, burners, and blower have been perfected for more accurate and speedy response to changes in room temperature, as well as for longer life. In fact, the modern furnace or boiler is now equipped with a mechanical brain which is a marvel of perfection and which not only responds to abrupt outside stimuli, but apparently anticipates changes before they actually occur.

Not only are control mechanisms for each individual function available, but manufacturers of these accessories now include two or more functions in one assembly. For example, main control valves are being combined with gas pressure regulators. Multi-stage valves for burners and blowers, fast-acting automatic pilots, bonnet temperature limit controls, and blower controls are being used in increasing numbers for the safety and convenience of the owner. In spite of the fact that they may be highly intricate in internal design and the product of scientific achievement, and although they are generally concealed inside of the control chamber panels, these accessories have also been streamlined in appearance so that they exhibit simplicity, beauty, and dependability.

Thermostatic Controls

All thermostats are, of course, completely automatic in controlling room temperature to predetermined conditions. Some are equipped with multiple electrical contacts and a clock which automatically provide any desired room temperature at different hours of the day. One has only to see these devices pictured in advertisements to appreciate their effectiveness as wall decorations, but pictures do not tell the complete story. Refinements in design and manufacturing methods have made these thermostats capable of maintaining extremely close control, inducing more frequent cycling and thereby eliminating what is commonly, albeit unpopularly, known as a "cold 70" condition. Consumers are assured that once a furnace or boiler is installed and placed in operation, these temperature controls will take over the job of house fireman and maintain absolutely steady temperatures throughout winter seasons. Because of this steady control, economy, as well as convenience and smooth operation, is inherent with gas units.

Heat alone does not necessarily insure comfort. Winter air conditioners that have accordingly been provided by gas furnace manufacturers, which in

(Continued on page 39)

Some of the first prize winners in The Garden Club of the Air Flower Show, November 16, 1940

"Thru the Garden Gate"

By FRANK C. SMITH

President, Houston Natural Gas System, Houston, Texas

BECAUSE of the widely scattered area in which we operate, Houston Natural Gas System has never indulged in radio advertising until this year, concentrating instead on cooperative appliance campaigns and occasional institutional newspaper advertising. However, in April of 1940 we took under advisement the proposal to sponsor a radio program for flower-gardeners for the summer months, feeling that this would fulfill a need for institutional advertising and at the same time render a very definite service to thousands of our customers.

This program was not new and untried, but a summer version of the Garden Club of the Air, a radio program that had been sponsored by one of the larger oil corporations for two years, September through May, and one that had gained national recognition. Knowing that garden groups were quite active in a number of the towns we serve, we decided to sponsor this program, called "Through the Garden Gate," for the summer months, broadcasting twice weekly over one of the larger Houston radio stations which reaches most of the area served by our gas system. The program was written and produced by Mrs. Ralph Conselyea, well-known garden authority, who originated and produced the Garden Club of the Air and who owns the program.

In addition to the Tuesday and Thursday morning broadcasts of fifteen minutes each, we made available a four-page garden bulletin which we named the Summer Garden Calendar, written by Mrs. Conselyea and published each summer month. It was full of timely garden news and information, with plenty of helpful hints on what to do that month in the garden.

These bulletins were distributed through our various district offices, through bulk mailings to presidents of garden clubs who wrote requesting the material, and to individuals who wrote asking that the garden calendar be mailed to them each month. A third phase of the program was to make Mrs. Conselyea, the director, available for appearances before garden groups, without cost to these groups.

It might be well to explain the policy that led us to undertake this garden program, and it is perhaps best expressed in this published statement of our aims:

"We believe that desirable living conditions and surroundings help communities

Mrs. Ralph Conselyea in action at the "mike" in The Garden Club of the Air program sponsored by the Houston Natural Gas Company

- **Mr. Smith's article is another in the series sponsored by the Committee on Community Development of the American Gas Association under the chairmanship of H. C. Thuerk. This committee's program is designed to stimulate greater community activity by gas companies with the fundamental idea that every utility should be a good citizen and good neighbor as well as a good business.**
- **Previous articles on this program have appeared in the April, May, July-August, and December issues.**

to grow. We know that people like to live in pleasant surroundings. A city of people interested in civic beautification is a progressive city, its citizens are forward-looking, its streets are lined with homes surrounded by flowers and beautiful lawns.

"We feel that in presenting Mrs. Ralph Conselyea and THROUGH THE GARDEN GATE we are not just sponsoring a radio program, or distributing literature on flowers and gardens. *We consider it a civic contribution, an added service of your gas utility.* Its direct application and benefit to the cities of people and homes we serve are the factors that interest us, and prompt us to sponsor this whole program for our mutual welfare."

Many interesting sidelights developed during these summer garden broadcasts. Garden clubs throughout the Gulf Coast area, which ordinarily discontinue meetings during the summer months, arranged special public meetings after securing the director's approval of a speaking date. Others held special club meetings during the broadcast hour, and tuned in the radio program as a part of the meeting, often being given a special salute by the director when she was informed of the meeting in advance.

Arboretum Built

In two towns served by our gas system, garden clubs began to discuss plans for a public arboretum, (defined by Webster as "a place where trees and shrubs are cultivated for scientific or educational purposes; a botanical garden of trees"). One of these clubs pushed forward with plans, enlisted the aid of the local Chamber of Commerce, and the two organizations appeared before the City Council, secured the Council's designation of grounds owned by the City as the place for an arboretum, and is now proceeding with the project, the first of its kind in the Texas Gulf Coast region; the second arboretum in Texas.

As a result of the publicity given this project on the radio program, a prominent Houston landscape architect furnished a free landscape plan, work that usually requires a $250.00 fee; growers have already promised free material for the arboretum in sufficient quantities to guarantee the basic material for the arboretum. Local citizens will have an opportunity to contribute pairs of shrubs or trees to this arboretum, making it a cooperative project in which all can have a part, following the carefully planned plot scheme.

Before summer's end, between 7,000 and 8,000 garden calendars were being distributed each month—approximately 1,000 in direct mailings to individuals, 3,000 in bulk mailings to clubs whose presidents had written in requesting the material for distribution in garden club meetings, and between 3,000 and 4,000 distributed through gas system district offices.

Early in September discussions were held, results analyzed, and it was decided to continue the garden program under the Houston Natural Gas System sponsorship. On October 1, the name of the program was changed to the already well-established Garden Club of the Air, with the same basic plan in effect, Mrs. Conselyea continuing to write the programs and produce them. Another radio station, in Corpus Christi, was tied into the programs to give better service to the gas system's customers in the southwestern area. Distribution of the monthly garden calendar increased to 10,000 each month, as more and more garden clubs became active after the summer vacation period.

All commercials have been kept on the institutional plane, with a standard sign-on and sign-off. In each program, Mrs. Conselyea refers to "friendly gas system" in her script, and often "bouquets" are handed us by guest speakers, many of them prominent club women, landscape architects, state highway engineers, and other well-known public figures. A Houston newspaper editor, whose hobby is gardening and who is an active member of the Men's Garden Club, was particularly warm in his praise of our gas system for our civic contribution when he appeared as a guest speaker on one of the radio programs.

One of the big events in the Garden Club of the Air program is the annual Fall flower show, held this year in our Houston offices. Last year, this Fall flower show overflowed the mezzanine floor of one of our larger Houston hotels, and the 1940 show was even larger. Local garden club women served on the committees for this flower show, and exhibits came from towns as far as 300 miles away from Houston. Prizes were garden materials, given by growers as a compliment to the Garden Club of the Air.

We feel that this institutional program, presented as a civic contribution and as an added service of our gas system, is adding substantially to the esteem in which we are held by the public. Every day's mail adds to the evidence of the interest in the program.

Engineering Achievement of 1940 Takes Shape

One of the three special holders nearing completion in Cleveland, Ohio, to store liquefied natural gas—development of which was hailed as the outstanding engineering achievement of 1940. At right is the cooling tower where the gas is reduced to the liquid state

Human Values . . . *The Ingredients of a Sound Office Training Program*

George B. Webber

ONE is apt to regard the balance sheet and the income statement, particularly of a large organization, as cold summarizations of figures. Actually these statements are pictures of human achievement. Many and complex factors affect them for better or worse, not the least of which is the attention paid to the training of personnel in shop, sales department, and office.

The training of production employees and of sales representatives has received considerable attention, perhaps because adequate training within these groups has a more direct and traceable effect upon the balance sheet, and possibly because the training needs can be more clearly isolated and defined. Until recently, office training does not seem to have received the same attention, yet there are indications that office training may be given considerably more attention in the future. Raising an employee more quickly to an office production level, eliminating errors, and creating a high quality of employee interest are but a few of the advantages that are produced by a sound and thorough office training program.

What is Meant by an Office Employee?

It will be well if we decided right at the start what is meant by the term "office employee." The following-named groups are illustrative of what can be referred to as office employees in a utility:

Office boy or girl
File clerk
Messenger boy or girl
Bookkeeper, ledger clerk

By GEORGE B. WEBBER

Public Service Electric and Gas Co. Newark, N. J.

Meter reader
Collection representative
Credit clerk
Applications clerk
Clerks in the treasurers' and comptrollers' office
Cashiers
Sales department clerks
Stock transfer clerks
Bill adjustment clerks or representatives (inside and out)
Billing department employees
Correspondent

Employees not directly concerned with physical production, or with direct selling can generally be classed as office employees.

There is probably not one company represented here that doesn't make some provision for training its office employees. It is also true that there is hardly a person that doesn't drive an automobile, but some automobiles are awful old traps. So are some of the office training programs, awful old traps. Yet, they are office training programs and the need for turning them in for new ones is not easy to prove. This discussion is intended to provide a method for evaluating an office training program, and for disclosing any weaknesses that may exist in that program. The following simple formula is used:

a plus b plus c plus d equal 100%
a = entrance, or vestibule training
b = general training
c = customer relations training
d = continuation training

There are four fairly distinct ingredients in a complete office training program.

Definitions

It is recognized that there is not common agreement as to the meaning of these terms, thus there follow definitions which will give better understanding of the ensuing discussion.

Entrance training includes two items, orientation and detailed instruction on how to do the job. Orientation includes information on office hours; general rules and regulations to be observed by the employee; when is pay day; what is the boss's name; and the names of persons with whom there will be close association during the workday; the working tools and where they will be found; and other similar points.

Instruction on how to do the job includes a nuts and bolts description of how to go about performing a specified task in the quickest and most accurate manner. Thus, the meter reader is given instructions showing him how to read a meter; enter the reading on the sheet; what to do with the sheet; and where his job starts and ends. Other office jobs are similarly treated.

General training, the second item in the formula includes provision for acquainting the office employee with the general policies of the organization. It shows the employee how his work fits in with that of the unit of which he is a part, how the unit's work fits in with that of a section, the place of the section in the department, the department's place in the division, and the division in the company. Company organization and policies affecting both employees and customers are presented in such a way as to make the employee feel himself a necessary part of the organization. Adequate general training is of considerable importance in a utility, because customers expect office employees particularly to be reasonably well-informed about their company.

General training is most effective if given after the employee has been in the company for several months.

Customer relations training, the third ingredient, provides employees

Address before National Accounting Conference, Detroit, Mich., Dec. 2-4, 1940.

with a definition of minimum requirements in satisfactorily dealing with customers. A company hires employees from a number of sources. These men and women have widely different environmental and educational backgrounds, different points of view, and even different levels of intelligence. It is not safe to assume that they are all suitably prepared to deal with your customers, whether during the working hours, or socially after hours. Each employee is the center of a little world of people, and the smart company makes sure that each office employee is trained so that he can represent the company to good advantage within his sphere. A customer relations training program seems absolutely essential to a utility office employee. And, it is not enough to conduct such a program once and expect its value to be perpetual. This type of training must be repeated, in new forms, from year to year.

Continuation training, sometimes called cross training, or versatility training, or rotation training, is the last, but not the least of the ingredients. The utility industry enjoys, if you want to look at it that way, low labor turnover. The business is also highly repetitive. These two characteristics add up to the fact that a given employee may continue in a given job for a long time, so long that he develops action patterns that are fixed. His arteries harden, and there you have an employee, unwilling and unable to keep up with changes, or change of pace; an old person. This employee may be young in years; but old in his attitude. Continuation training is an antidote for this. Properly conceived, this type of training helps the employee to retain suppleness of thought. It keeps him trainable, adaptable, hopeful; ready for the next job. It is this type of training that adds flexibility to an organization whose employees are subject, for example, to conscription. This training, like customer relations training, to be effective must be continued from year to year.

These definitions which have been given of the different types of training seem reasonably suitable for our discussion to follow.

The four ingredients in the office training program are not of equal value, and it is quite likely that there will not be general agreement as to the weight to be assigned to each. It is believed, however, that the following evaluations can be defended:

Entrance training—30% of the program. If the entrance training program is 100% effective, thoroughly suited to a given situation, 30% of the total office training responsibility is adequately discharged.

General training—20% of the program. If the general training item is being covered with 100% effectiveness, 20% of the total responsibility can be considered discharged.

Customer relations training—25% of the program, provided it is being adequately discharged, and less if the media used are not entirely suitable.

Continuation training—25% of the program if it is 100% effective.

The formula then reads:

a plus b plus c plus d equals 100%

a—30%	c—25%
b—20%	d—25%

Factors Affecting the Nature and Quantity of Training to be Given

It is understood that all companies have not used and cannot use the same approach to their office training programs, nor does it necessarily follow that a program that is suitable under one set of conditions may be equally successful elsewhere. The size of the company affects the nature of the program. The number of new employees coming into a given location within a period of time determines largely the extent of the staff training required. The experience with labor turn-over, the sources of supply, the education and previous experience required of applicants, the characteristics of the customers served, the degree of standardization and specification of office jobs all have their effect upon the amount and nature of the training that can be supported by common sense in a given company.

Investigation of the plans in use by number of companies shows that there are certain definite media that are being used to discharge the office training responsibility. These media are as follows:

1. Apprentice training.
2. Individual discussion.
3. Job sample instruction.
4. Class lectures.
5. Group conferences.
6. After-hour company classes.
7. After-hour classes in educational institutions.
8. Cooperative training.
9. Visual training.
10. Flying squads.
11. Manuals.
12. House organ.
13. Company library.
14. Bulletin boards.

Such investigation as it was possible to make in preparation for this paper, together with a general knowledge of the field, discloses only these media. On a separate chart they are listed, and there is shown, over the top, the four ingredients in the office training program. The figures below show my estimate of the degree of effectiveness of each of these media when applied to each of the four ingredients. The top rating is ten, the lowest rating is zero. Again it is emphasized that this is one person's rating based upon experience and observation, and it will be surprising if there is complete agreement with the ratings shown. They are offered for your consideration.

Apprentice training starts the new employee with simple work units that are easily understood and performed. As one unit is thoroughly mastered, the learner advances to the next step and so on until he has mastered what may be a rather complex office duty. This media can be used effectively for entrance training at points where there is a large quantity of repetitive routine, where the work units can be readily isolated, and where speed in breaking in the new employee is not of great importance. It is rated at seven for entrance training, one for general training, zero for customer relations, and three for continuation training.

Probably the oldest and most commonly used medium is *individual discussion.* Here the supervisor, or an older employee, pours facts and routines all over the new employee. This medium has value only when it is conducted on a prearranged and planned basis, and when discharged by a qualified person. Some companies hide behind the belief that their office employees are given adequate entrance

training by supervisors who talk to the nervous new person for an hour or two then turn him loose on a complicated job. An entrance training program based upon individual discussion must, to have any value, be accompanied by a manual, or be supplemented by a supervisors' training program that includes a discussion of how to train new employees. Thus, we give individual discussion as an entrance medium a value of one.

Individual discussion is somewhat more effective for general and for customer relations training because the employee has, after a period of employment, developed a reasonable focal point which helps him to understand better the instruction to which he is subjected. In each case we can assign a value of four.

Individual discussion is of decidedly limited value in continuation training. Sometimes a supervisor takes it on himself to build up his people, and because that has some value, we shall give it a relative count of one.

Job sample instruction is decidedly progressive, and is useful at points where a relatively large number of employees are hired for entrance positions. Under this method, actual working conditions, routines, and problems are simulated and discussed. Such a program is ordinarily conducted by a trained instructor who, unit by unit, describes the work, shows how it should be done, watches the employee do it, then comments upon the performance. This method has great value in entrance training, so we can give it a rating of seven. It has no value in general training. It has high value in customer relations, and rather limited value in continuation training.

The classroom lecture method involves bringing a number of employees together at a given point after they have been employed for a few months for the purpose of listening to an instructor or a supervisor talk about certain phases of office training. This method has limited value for entrance training because the mind of the new employee is not prepared to receive the material usually crammed into a short space of time. It has reasonably high value for general training because the lecture answers many questions that have come up in the employee's mind. It has reasonable value as a customer relations training medium and decidedly limited value for continuation training.

VALUE OF DIFFERENT MEDIA IN THE OFFICE TRAINING PROGRAM

		A	*B*	*C*	*D*
	Media	*Entrance*	*General*	*Customer Relations*	*Continuation*
1	Apprentice training	7	1	0	3
2	Individual discussion	1	4	4	1
3	Job sample instruction	7	0	8	1
4	Class lectures	2	7	5	2
5	Group conferences	2	9	10	8
6	After-hour company classes	0	5	2	10
7	After-hour classes in educational institutions	1	0	1	8
8	Cooperative training	2	1	0	0
9	Visual training	6	4	6	4
10	Flying squads	6	2	4	6
11	Manuals	7	5	5	1
12	House organ	0	3	3	2
13	Company library	0	4	0	4
14	Bulletin boards	0	1	1	0

10 Points = maximum rating.

The group conference method, described by its name, affords discussion under qualified leadership of a subject that has high interest in the group. This method has limited value under "a" since the new employee is poorly prepared to discuss the new subject. However, it has high value under "b," "c," and "d." By giving employees an opportunity to talk the subject over and hear it discussed in a like-minded group under proper leadership, the method encourages a high degree of reaction and retention. It is being used not only by many utility companies, but also by certain more progressive industrial concerns. Wherever used, under a suitable plan it has proved its value.

After-hour classes sponsored by the company, and held on company property provide a channel through which fundamental instruction can be given in such subjects as rates and their application, accounting principles, English, and similar studies of value to the office employee. It is of further value in keeping employees' minds freshened, alert, and aware of the fact, that there is still much to be learned. It has no value as an entrance training medium. It has value under "b" insofar as the "Employee Information" or "Know Your Company" courses, made part of the evening class program provide general information about the company. An excellent description of these programs is presented in the very large and recently released publication in which the E. E. I. summarizes employee information programs of 37 companies. This medium has limited value under "c" and high value as a continuation program.

After-hour classes offered in high schools and colleges are rated highly as a continuation training medium. Some companies encourage their employees to take these courses by paying a portion of the tuition fee. In at least one case, a utility company cooperates with the evening high schools in the development of courses suitable for use by the company's employees. These courses are offered as part of the high school's program, and are open to any who desire to take them. This medium has little value in entrance and customer relations training, no value as a general medium, but is given a high continuation training rating.

Cooperative training has been tried in a few places. Under this method a student regularly matriculated in an outside educational institution, spends about half of his time in formal study, and half working for a given company. This affords a company an excellent opportunity to cooperate with schools in the area, to observe the prospective employee before he is added to the payroll. It has limited value as an of-

fice training medium, and it is given a low rating under all four headings.

Visual training includes such aids as motion pictures, sound-slide films, charts, and planned playlets. Properly designed and used these visual aids, while usually not a complete medium in themselves, add greatly to other media used in the office training program. Sound-slide films, for example, have recently received considerable attention, particularly for customer relations training of a general nature, and they have proved their value when tied in with general discussions of certain phases of the subject. These media have been given a high rating for all four purposes.

The flying squad or cadet type of training provides employees with experience in many departments of an organization, and it makes available to the organization a supply of broadly trained people who can fit in at any needed point. Usually this training, because it is expensive, is given to especially selected employees. It is a useful medium for entrance and continuation training, but has somewhat less value for customer relations or general purposes.

Manuals provide an excellent medium for entrance, general, and customer relations programs. Properly designed, they reduce training to the printed work, and inherently are an accurate means of presenting instruction. Entrance training manuals, manuals of employee conduct, rules and regulations governing employees, customer relations manuals for meter readers, collectors, bill adjusters, application clerks, are samples of the type of material that lends itself to this treatment. Manuals are most effective when used in conjunction with other media, such as group conferences. The manual has limited value as a continuation training media.

The house organ, or the employee newspaper is a reasonably effective medium for certain types of general and customer relations training releases. A recent survey made by the Policy Holders Service Bureau of the Metropolitan Life Insurance Company showed that employees read with great interest articles about the company, its various departments, and its problems. There was greater interest in these types of articles than in the newsier items about marriages, babies, and fishing that are often given a greater amount of space. The ratings reflect the value of this medium.

The company library is reasonably useful for general and continuation training, but has no value for entrance or customer relations training. Library courses that offer progressive readings on specialized subjects build the office employee's general fund of information about the Company, and offer instruction of a continuation type. The ratings reflect these potential uses.

The bulletin board is listed here only because some companies refer to it as having training value. The low ratings that are given reflect the doubt regarding the value of this medium.

This chart with the ratings offers a reasonable basis for evaluating the office training program of a given company. If your company has, under each of the four ingredients, a related program that adds up to a total of ten or more, you can take full credit in the original formula. If for example, your entrance training program provides job sample instruction combined with the use of a manual, your count of fifteen would entitle you to take a value of thirty for "a." If, however, you depend alone upon your supervisors or older employees without a plan to pass the good word along to the new employee, your entrance training program is worth one-tenth of thirty, or three, and your overall program is weakened to that extent.

What I have tried to do in this discussion is to catch hold of a rather elusive problem and reduce it to a formula, which, if applied with common sense in a given company, may show where there may be need for strengthening the office training program of that company.

Manufacturers To Meet in Los Angeles

THE annual convention of the Association of Gas Appliance and Equipment Manufacturers will be held at the Ambassador Hotel, Los Angeles, Calif., June 3-4-5, 1941, according to an announcement by W. E. Derwent, president of the Association. This will be the first time that this Association has held its convention on the Pacific Coast.

New York's Biggest Rink To Be Heated by Gas

GREATER New York City's largest roller skating rink—the Rollerdrome, now under construction at 200 Empire Boulevard—will be heated exclusively by gas, Fred Neuls, commercial sales manager of The Brooklyn Union Gas Company announced in December.

The Rollerdrome will have 30,000 square feet of inside floor area and will accommodate up to 3,000 skaters at one time. It will be one of the largest commercial heating jobs employing manufactured gas anywhere in the country. The added gas load is estimated at 4,150,000 cubic feet annually.

Really "Wet" Meters

METERS were really wet in the good old days, or at least way back in 1858 when the Washington Gas Light Company issued a circular to gas consumers on this subject. The Washington notice stated that the "cheapest way to prevent the wet meter from freezing is to fill it with whiskey; and it is earnestly recommended that this be done by every consumer." The company then offered to fill the meter free of charge, the gas consumer furnishing the whiskey.

The circular, issued on December 1, 1858, included a table showing amounts of whiskey required for the first filling which ranged from 1½ gallons to 30 gallons according to the size of the meter.

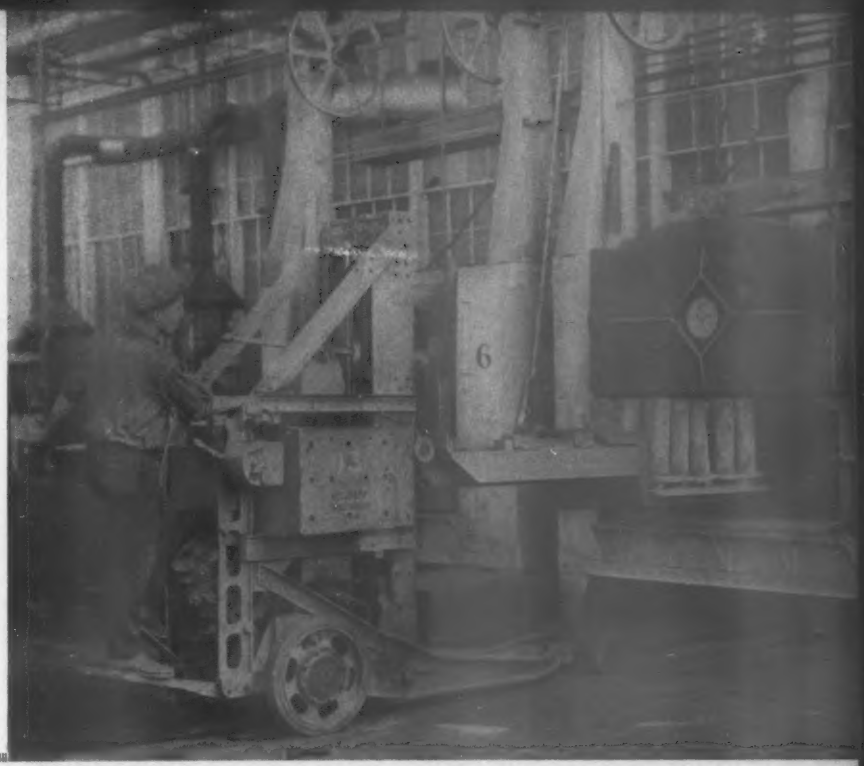
Atlantic City Again

THE twenty-third annual convention of the American Gas Association will be held the week of October 20, 1941, in Atlantic City, New Jersey, according to an announcement by T. J. Strickler, of Kansas City, Missouri, president of the Association.

Range Manufacturer Reports Good Year

W. FRANK ROBERTS, president of Standard Gas Equipment Corporation, stated in a recent address that the company has had a successful year. The Baltimore plant operated at peak capacity this Fall producing more ranges in October than in any month during the past ten years. The Jersey City plant has also been very busy.

Mr. Roberts said that the company is cooperating with the Government in its defense program. Additional facilities were added to take care of an initial order of over 1000 heavy duty ranges for use in Army Camps. According to Mr. Roberts there is every indication that business will be good in 1941.



Two of eight box-type pack carburizing furnaces recently converted to gas-firing by means of radiant burners studding the arch —a heating feat impossible in 1914-'18. A 12-hr. cycle has been reduced to 8⅔ hrs., fuel costs trimmed, and efficiencies upped. Preparedness demands for armor plate have boomed this class of production

War I versus War II . . . *in Gas-Fired Metal Treating and Melting Equipment*

By HARRY W. SMITH, JR.

American Gas Association

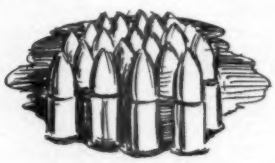
YES, World War No. 1 was fought with machines and production methods too. But what a difference there is between the machines and production methods used in 1914-18 and those we have available today to keep World War No. 2 on the other side of the Atlantic—and to fight it if it comes our way. There's no comparison!

Just to prove it we went to Clayton S. Cronkright, chairman of the Metal Treating and Melting Committee, A. G. A. Industrial and Commercial Gas Section, and asked about furnaces, heat treating equipment, controls, and all the heat-consuming machinery and production methods which we know play such a big part in making possible today's superior bombs, airplanes, rifles, battleships and tanks. (With a prayer, let's add plows, automobiles, radios, toys and typewriters to the list.)

Said Mr. Cronkright, "Yes sir, the development of metal treating and melting equipment since the last war has been terrific—but, before you get down to brass tacks, make it plain that this development has been no one-sided contribution. It's been a joint and parallel progression in which almost everybody's had a hand.

"It's true that gas-fired metal treating and melting equipment today is vastly more mechanized, efficient, flexible, rapid and convenient—it's true that the gas industry and the gas equipment manufacturers have worked like the deuce to make it so—it's true that gas has helped to carry out many amazing research conceptions in a practical industrial way, to give laboratory results on a full production basis at a cost industry could afford to pay—it's true that we've given to industry unprecedented time-temperature-cycle precision, unsurpassed control over surface conditions and metallurgical changes, smaller furnaces which are more versatile and effective in up-to-date production lines, and numerous other benefits to the cost, quality and rate of production of metal products. And we're proud of what we have done. But without the growth of modern mass production methods, without the demands of the metal trades for greater precision and higher efficiencies, and without the discovery of the myriad new alloys and materials requiring 'fussier' processing and heat treatment, we would never in a million years have come up with the goods we have delivered. Make that plain, and you can talk about what we have today that we didn't have during World War No. 1."

Armament works in England are meeting demands for shells and more shells with the aid of gas-fired heat-treating equipment. This photograph, appearing in a recent issue of a London industrial magazine, shows current shell reheating operations with a slot-type over- and under-fired unit



General Improvements Since 1918

Since World War No. 1 the heat applications in industry have been multiplied, widened and complicated immeasurably. In the interest of strength and light weight, industry has found that smaller heat treated parts can do the work of larger non-heat-treated parts. Further, each new alloy or metal material has brought new heat treating problems: the moly steels and their propensity for "soft-skinning" by loss of molybdenum at the surface; the chrome-nickel, stainless and heat resistant groups and their "prima donna" metallurgy; the zinc and aluminum die-casting alloys and their insistence upon super-precise temperature control both of metal and die; the nitriding steels and their special nitrogen baths; and all the bright or clean annealed coppers, brasses and ferrous materials and their dependence upon the chemistry of the atmospheres surrounding them during the annealing period.

Along with the widening and complication of heat treatments has come great specialization of appliances to specific heating jobs. Here are a few types of designed-for-special-purpose gas appliances we didn't have as catalog items in 1914-18: air draw furnaces, continuous open-flame wire annealers, separate convected air units, immersion-heated stereotype pots, annealing covers, plating tanks integral with burner equipment, unit galvanizing pots, die casting machine pots, hi-speed furnaces for special alloy steels, gas-oil forge furnaces, rivet heaters and even standard soaking pits.

General, overall improvements of gas-burning equipment for the metal industries in the past 20 to 25 years might best be classified with respect to: (1) handling methods, (2) convenience and size, (3) temperature control, (4) time cycles, (5) attainable limits, and (6) atmospheres.

Most operations in 1914-18 were batch. Now continuous operation is the rule. There were roller hearth and pusher furnaces at the time of the last war, but they were by no means so widely used. Today we have walking

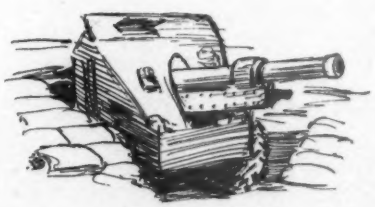
beam, shaker hearth, conveyor belt, and all manner of special means of carrying work continuously through heating apparatus. Further, more heat-resisting alloys are used for lighter and longer life conveying mechanisms kept in the heat zone so as not to carry useful heat out of the furnace.

For greater convenience, smaller units and less weight, lighter refractories, and refractories which are also highly insulating, have been developed. As one example, this development has resulted in marked fuel economies, as well as easier manipulation and space savings, where tilting and stationary crucible-type furnaces (for brass melting, etc.) are concerned. Remarkable advances in convenience and cost have been wrought through standardization of furnace parts for interchangeability and replacement. Furnace sizes have been reduced by the use of high burner pressures, premixed gas and air, refractory burner tunnels and other devices which actually reduce the space required for combustion and the liberation of the required amount of heat.

Automatic Control Featured

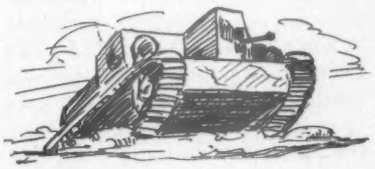
Automatic temperature control today is almost mandatory. The "eye and hand" method of control characteristic of production for the last war has been supplanted by "recorder and instrument" control. Safety devices have become so ingenious that accident (either to equipment or work) is almost nonexistent. Temperature controls today are available to render automatic the establishment of almost any required condition.

Heat distributions within furnaces are as precisely planned. Less gas is now burned at more points to do the



same job, and automatic individual control of each burner is feasible if desired. So many heat-treating operations are now a function of time as well as temperature that furnace zoning is widely used. Conveyor speeds are adjustable, and clock-controlled firing is frequent. The new Austempering installations so widely discussed of late in metal industry circles are models of what can be achieved today with gas firing by way of automatic time-temperature-cycle control.

The attainable limits of heating equipment with respect to speed and temperature have been extended markedly. Recirculated, direct-fired air heaters, for example have been applied to ovens and medium temperature furnaces to a degree that would have caused the heating engineer of World War days to stutter. Alloy fans and ducting have played a part in this picture. The result has been tremendous



improvement in the uniformity and speed with which highly configurated or bulk parts can be handled. Tempering "ain't what she used to be."

The star role in the drama, however, has perhaps been played by special furnace atmospheres. In World War days such few atmospheres as had been tried were high-priced special chemical agents in heat treating, and were applied only in retort applications. Today's family of atmosphere machines began to arrive in the middle 20's and brought with them, and at a cost low enough to permit profit for the user, the metallurgical and production benefits now so well known and so necessary to modern metal treating.

The most widely used type of furnace atmosphere, that generated by the combustion or partial combustion of gas under controlled conditions, is even more recent. Raw Gas and Charcoal-Generator are old friends. Methanol, Lithium, Charmo and Nitrogen-Generator are newer brothers. Atmosphere development by scientific control of the combustion of the very gas that does the furnace heating is still in its infancy, but giving quality results at minimum cost to several producers. Consider them by functions—all new since World War No. 1: the carburizing atmospheres, the nitriding atmospheres, the coloring atmospheres, the oxidizing atmospheres, the reducing atmospheres, the protective atmospheres to prevent decarburization, the anti-soft-skinning atmospheres for moly steels, the bright or clean annealing atmospheres, the special atmospheres for special tricks.

Specific Heating Developments

So far we have considered only the general trends in metal treating and melting since World War No. 1. Let's turn to specific equipment. Let's make a partial count of gas-using apparatus we have developed since then.

Consider the burners and combustion systems themselves. Prior to the 20's the Bunsen or atmospheric burner, the simple high-pressure-gas inspirator, and the manual two-valve control of gas-air mixtures burned through simple ports about constituted the refinements of firing. Since then, automatic proportional mixing (and premixing) of gas and air has become the rule rather than the exception. For years, now, we have enjoyed the system with a zero governor on the gas line and blower-supplied air to inspirate the gas in correct proportion over a wide range of total heat inputs. Such systems are now as common as department foremen, but what an advance over manual mixing they represent!

Motor driven, automatic, positive pressure mixers are further produced by a number of manufacturers (some call them "carburetors") and are widely applied where "gangs" of burners

or numerous appliances are to be operated on the same air-gas mixture. Some of these mix 100% of the air required for combusion; some mix a predetermined fraction only so that secondary air inspiration at the appliance permits different adjustments tthroughout the plant. Two-stage burners have refined the air-inspiration of the old-fashioned high-pressure burner which was shoved through a hole in the furnace wall in the hope that not too much and not too little secondary air would be injected.

Special Burners

And as for the special burners available today there are: the refractory-head and lined-tunnel types for high ratios of turndown, the gas radiants producing infra-red heat, all manner of adjustable ribbon varieties, nozzle-mixing types for luminous flame multiple-port styles, power burners for boiler firing, focussed flame torch heads, ring burners, bar burners, diffusion-flame burners, impact burners, gas-oil burners, under-water burners,

A gas-fired furnace installed in a Brooklyn plant which is used in the manufacture of gears for airplane engines. This modern air draw furnace tempers 400 lbs. per charge of precision steel parts up to 1200° F.

and dozens of other types each engineered to produce just the right kind of combustion at the right place for the particular requirements of the job at hand. In the very first requirement of heating engineering, that of properly burning the fuel, the metal industry of 1918 was a comparative amateur.

Mr. Cronkright feels that the biggest single step away from the World War heat treating methods was gas carburizing, started in 1915. Ironically the requirements of the first World War made the necessity which brought about gas carburizing and its labor saving advantage over pack methods. Today we get a more rapid and more uniform case, better control of its depth, and less dirt in the shop, with up-to-date rotary, zoned-retort, vertical and horizonal retort, and refractory retort gas carburizers. Nitriding grew from gas carburizing.

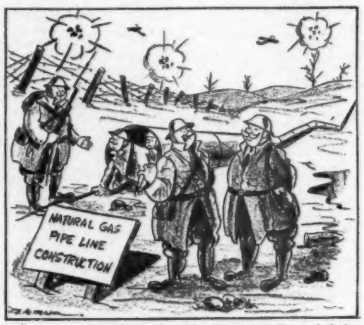
Radiant Tube Development

Modern alloys and the metal industry's demand for something to overcome the mechanical limitations of muffled atmospheres brought on another tremendously important development, the radiant-tube or hot-tube furnace, wherein all the combustion and combustion products are restricted to within the radiant tubes of special alloy which in turn are arranged on walls, arch or floor to do the heating of the work indirectly. Thus the whole furnace space becomes, in effect, a muffle.

In annealing operations, in vitreous enameling, and in gigantic controlled atmosphere jobs of all types, radiant tubes have earned their way many times over in the few short years they have been with us. Radiant tubes are already of various types: the straight push through type, the negative pressure type with inspirated exhaust, the recirculating type, and even a new type (we hear) fashioned of sintered pyrex glass.

Closely allied to radiant tube annealing covers are various new varieties of bell furnaces to be let down over the work (which may or may not be encased in atmosphere-containing jackets as in nitriding). Some are tangentially fired, some direct fired, some studded internally with burners which produce radiant heat at very high efficiencies. 1918 couldn't boast these.

And now that we've mentioned gas radiants—those refractory gas burners, the bulk of whose heat output is infrared radiation at temperatures from 1500 to 3000° F. (they're post-war too)—consider their applications to finish drying, varnish cooking, strip annealing, etc., where aimed radiant heat pays out. In the pack carburizing of armor plate certain producers have just recently adopted gas radiant burners in the arch to overcome long-standing complications associated with the heat distribution throughout the pack as well as costly hearth constructions required to handle such gigantic loads if conventional over-and-under firing methods are used.



Courtesy *Public Utilities Fortnightly.*

"Like to see the 'Blues' match that for a strategic retreat, eh, Major?"

The immersion heating of soft metals (such as type metal), and liquids (such as bonderizing solutions) is another new process we've developed—in order to improve heating efficiencies by healthy percentages. Here again, as in radiant tube furnaces, the flame and its hot flue gases are restricted to within tubes totally surrounded by the metal or liquid being heated. Thus, rapid rates of heat-transfer and long flue-gas-travels within the batch are possible, so that by the time the exhaust gases leave the useful zone their heat content has been more thoroughly extracted than by any other heating method. In certain cases, the combustion tube itself has been eliminated, so that the flame burns below the liquid level and the products of combustion bubble up through the bath.

Only because of the existence of recently developed combustion equipment is such "submerged" combustion feasible. Its principal application in the metal field to date, is in the heating of pickling baths for continuous galvanizing. Liquid heating by the submerged combustion method not only assures high thermal efficiencies (although the temperatures obtainable are limited), but the extra virtue of a violent agitation or stirring action caused by the escaping gases.

Since World War No. 1, we have also learned how to burn gas in such a manner that maximum flame luminosity is obtained. Today, burners are available which project gas and air into the combustion chamber in alternating layers which gradually intermingle and burn in lazy "diffusion" flames from 3′ to 30′ long and exceptional luminosity. The luminosity is caused by the incandescence of carbon particles cracked from the hydrocarbon fuel constituents. In Day tanks for glass melting, in open hearths, and in forging such flames have resulted in better heat distributions throughout the batch. Because of the streamlined flow from such burners, the lower layer of raw gas may be made to surround the work and protect it from oxidizing influences. Open hearth and forging operations have particularly profited from this trick.

Wire-Annealing Methods

Less than two years old are new wire-annealing methods in which no combustion chamber is needed. The wire passes through precisely controlled *open* gas flames in a long row, piercing each tiny flame at precisely that point where the temperature and chemical composition of the burning gases is exactly right for the anneal required. Open-flame heating methods such as this one save much fuel by precluding the necessity of heating heavy refractory constructions and maintaining them at temperature. In specially devised torches, city gas may be burned with oxygen for cutting, welding, and brazing operations.

Mr. Cronkright explains that gas-oxygen cutting leaves a softer surface at the cut—a great aid in subsequent machining operations. Radical economies in fuel consumption, of course, can be achieved where city gas can replace bottled gases in oxygen torch work. Another allied application of city gas torches, and another newcomer,

is in metallizing, or the spraying of molten metal on other parts for building up worn surfaces, depositing corrosion-resistant layers, etc.

So far, we have considered only the new heat applications for gas which have marked the past twenty years of peace. But fuel engineers have also learned that natural and manufactured city gases are useful in refrigeration and air conditioning. Gas-fired dehumidifiers in hundreds of industries now control air moisture so precisely that weather need not be a factor in process work.

In the production of tungsten and molybdenum wire, the bars of compressed powdered metal from which the wire is ultimately drawn will not sinter properly in moist spaces. Gas-fired dehumidification-air-conditioning has solved one of the major problems facing such producers. In all air-dry finishing, of course, dehumidified air accelerates drying; and, what is more important, precludes lacquer-room shut-downs in muggy weather. Further, in furnace atmosphere production no decarburizing agent is more troublesome than water vapor—so gas dehumidifiers are often applied to remove that trouble maker by dessication.

In all the developments above described—in making the metal treating and melting equipment for World War No. 2 many times more effective, versatile and speedy—research has played a predominant role. The Industrial Research Committee of the American Gas Association has contributed much; and no utility or producer has failed to add his mite to the pyramiding knowledge of how better to apply gas to the metal man's needs.

National Defense and Gas Conservation Get Commissioners' Attention

THE National Association of Railroad and Utilities Commissioners devoted a full afternoon session of its annual convention in Miami, Florida, December 10-12, to the subject of national defense and the gas industry's efforts in this direction received prominent attention. Of particular interest was the report of the standing Committee on Progress in Public Utility Regulation which consisted of a 156-page printed pamphlet entitled "Utility Regulation and National Defense." Chapter 3 of this pamphlet summarized the work of the gas industry under the title "Role of the Gas Industry in National Defense."

This chapter points out that "the gas industry is becoming increasingly conscious of its significance in national defense." Stating that "to a considerable extent this has been due to the efforts and activities of the American Gas Association," the report reviews the work of the Committee on National Defense under the chairmanship of George F. Mitchell of Chicago. It refers particularly to the study of toluol production and other activities of this group.

At the time of the last World War, the report states, the gas industry was considerably behind its present-day development. "But," it continues, "gas companies have made noteworthy strides since the days of 1917-1918. During the decade between 1919 and 1929 gas gained steadily in competition with coal as a fuel for industrial uses. And in the decade since 1929 industrial gas use has increased fifty per cent, notwithstanding other recessions and fluctuations in the ten-year industrial and business cycle. Today, accordingly, the gas industry has not only more highly perfected facilities but also better qualified technicians to meet the industrial requirements of national preparedness."

The report also refers to the improved equipment and superior methods for industrial heating evolved since the World War, and quotes extensively from the A. G. A. Convention address of Franklin T. Rainey, immediate past chairman of the Industrial Gas Section, on "The Gas Industry's Opportunity in National Defense."

While the chief concern of the gas industry in our program of national preparedness apparently is the production of adequate supplies of fuel to help turn out materials of war, the report states, "Utility commissions could well afford to attach greater importance to another problem. This is the need of intelligent conservation and economical utilization of our supplies of natural gas for peacetime development and emergency needs, as well as for present use in our national defense program."

Chairman James Lawrence Fly, of the Federal Communications Commission, described the composition and duties of an official Defense Communications Board which has been set up in Washington. Mr. Fly referred to elimination of bottlenecks, assurance of adequate equipment, attention to vulnerability of plants and distribution, employment of guards as adjuncts, protection of personnel, and watchfulness even of delivery and junk wagons. "What would you do with a time bomb in your lap? Is it not well to have some telephone numbers available to ask what to do? The time to prepare for an emergency is before it arrives."

The report of the Special Committee on National Defense Program, also made at this session, told of the sample questionnaire which has been sent to all State Commissioners for such use as they may desire to make of it in assembling information for their own or national use. Section C of this questionnaire deals with supply of natural and manufactured gas.

Major Alexander Forward, managing director of the American Gas Association, who was in attendance at the convention, reports that "the discussion, pitched on a high plane and notable for earnestness, was of absorbing interest and was followed with closest attention by the unusually large number of regulatory commissioners present."

Changes in Stockholders' Annual Reports

A NEW study of stockholders' annual reports has been issued by the Policyholders Service Bureau of the Metropolitan Life Insurance Company entitled, "The Annual Report to Stockholders." This study shows that many companies are devoting more thought to the preparation of their annual reports, resulting in tremendous changes in their appearance and content in recent years.

Appearance changes include increased use of color, pictorial covers, charts, photographs, maps, drawings, and increased attention to paper stock, typography and layout. Similar strides forward have been made in content—both in text and in financial statements. Two trends are evident in financial statements—one towards simplification and one towards greater itemization. Some companies present their reports in two sections—one a brief simplified account and the other a detailed financial statement.

Examples and illustrations of various types of presentations are given. In its text the annual report tells not only whether the company made or did not make money, but also discusses industrial relations, public relations, special problems, products, customers, economic conditions, or any subject which affects the company.

The whole general subject of keeping stockholders informed is discussed in a companion report entitled "Improving Stockholder Relations" also recently issued by the Policyholders Service Bureau. Seventy-six companies, mostly large and with stock widely held, were consulted and in addition opinions of 71 stockholders were obtained to discover stockholder reactions.

Copies of these two reports are available to executives who address the Bureau on their business stationery. Address: Policyholders Service Bureau, Metropolitan Life Insurance Company, 1 Madison Avenue, New York City.

Personal AND OTHERWISE

Bruno Rahn Elected A. G. A. Director

Bruno Rahn

BRUNO RAHN, president of the Milwaukee Gas Light Company, Milwaukee, Wisconsin, was elected a director of the American Gas Association at a meeting of the Association's Executive Board on December 5.

Mr. Rahn has been continuously active in Association affairs for many years. He is immediate past president of the Wisconsin Utilities Association and was president of the old Wisconsin Gas Association in 1921. He became president of the Milwaukee Gas Light Company on April 1, 1939, succeeding R. B. Brown who retired at that time. Mr. Rahn was previously vice-president and general manager of the company.

Boyer Named Manager of Gas Department

Edward G. Boyer

EDWARD G. BOYER has been appointed manager of the gas department of the Philadelphia Electric Company, succeeding Leon B. Eichengreen, recently deceased.

Mr. Boyer is a native of Catasauqua, Pa., and a graduate engineer of Lehigh University. He entered the employ of The United Gas Improvement Company in 1911, subsequently becoming assistant superintendent of gas operations of the Northern Indiana Gas and Electric Company, Hammond, Indiana, in 1914. Later he was made superintendent of the Reading plant of the Consumers Gas Company, at Norristown, Pa., in 1924. He was appointed superintendent of gas handling and production of the Philadelphia Suburban-Counties Gas and Electric Company, a predecessor of Philadelphia Electric Company, in 1927.

Mr. Boyer is a member of the American Gas Association, a past president and member of Council of the Pennsylvania Gas Association, and a member of important committees of both organizations.

Potter Joins Fall River Gas Company

H. Vinton Potter

H. VINTON POTTER, formerly merchandise, sales and advertising manager of the Oklahoma Natural Gas Company, Tulsa, has been appointed general sales manager of the Fall River Gas Company, Fall River, Mass., Mr. Potter went to Fall River on December 1.

Prior to joining the Oklahoma Natural Gas Company in 1937, Mr. Potter was associated with the Blackstone Valley Gas & Electric Co., Pawtucket, R. I. He has been active in the Residential Section of the American Gas Association and for several years was chairman of the Window and Store Display Committee.

While in Tulsa, Mr. Potter served as president of the Tulsa Advertising Federation and was chairman of the Publicity Committee of the Tulsa Chamber of Commerce when he accepted his new position.

In the Spotlight

THE December 19 issue of *Gas Age* pays tribute to Major T. J. Strickler, president of the American Gas Association and vice-president and general manager of The Kansas City Gas Company, in a special article by Floyd W. Parsons headed "Who's Who—and Why." Mr. Parsons points out that Major Strickler is one of the hardest workers and best "mixers" ever to serve the A. G. A. as president. If you want to know more about your Association's new leader turn to page 19 of that issue.

Refrigerating Engineers Elect Dr. Hainsworth

Dr. Wm. Hainsworth

DR. WILLIAM R. HAINSWORTH, vice-president in charge of engineering of Servel, Inc., was elected a vice-president of the American Society of Refrigerating Engineers at the final session of the Society's annual convention held in New York.

Dr. Hainsworth's contributions in the development of the Servel Electrolux gas refrigerator gained for him many honors, among them the Charles A. Munroe Award granted annually by the American Gas Association to "the person making the most outstanding contribution to the gas industry."

L. Logan Lewis, vice-president in charge of engineering of the Carrier Corp., Syracuse, N. Y., was elected president of the Society. Charles R. Logan, Superior Valve and Fittings Co., Philadelphia, Pa., was also elected a vice-president, and John S. Stone, Johns-Manville Co., was elected treasurer.

F. E. Sellman Heads New Firm

F. E. Sellman

F. E. SELLMAN, for the last ten years vice-president of Servel, Inc., has formed a new company, Gas Refrigerator Distributors, Incorporated, which will handle the distribution and sale of Servel Electrolux Refrigerators in the areas of Metropolitan New York, formerly handled by the Consolidated Edison Co. of New York, and in Westchester County that territory which has been handled by the Westchester Lighting Company.

Mr. Sellman is well known in the gas industry both to utility men and to the manufacturers of gas appliances. He has served on various committees of the A. G. A., notably the General Requirements Committee of the A. G. A. Testing Laboratories; the Refrigerator Requirements Committee of the Laboratories; and the Refrigeration Committee of the Commercial Section. It was under his guidance that the National Refrigeration Campaigns now so popular in the industry were first inaugurated and developed.

S. R. Inch Resigns

SIDNEY R. INCH has resigned as president of Electric Bond & Share Company but will remain as the head of Ebasco Services, Inc., the Bond & Share subsidiary service organization.

The resignation was aimed to meet objections of the Securities and Exchange Commission against interlocking executive positions in utility holding companies and subsidiary service units.

In line with the switch, C. E. Groesbeck, chairman of Electric Bond & Share, has resigned as chairman of Ebasco Services and has assumed the presidency of the top company vacated by Mr. Inch.

The SEC. some time ago indicated it would not approve the service unit until the interlocking set-up was rectified.

H. A. Wallace Elected Vice President

HARRY A. WALLACE, JR., of Charleston, W. Va., who was formerly assistant general manager of the Charleston Group of Columbia Gas and Electric Corporation Companies, has been elected vice-president of those companies operating in Southern Ohio, West Virginia and Kentucky.

The post was created at the December meeting of the Columbia Gas and Electric Corporation directors in New York.

Mr. Wallace, who was formerly connected with the Binghamton Gas Works of Binghamton, New York from 1930 to 1937, has been connected with the United Fuel Gas Company and Associate Companies since 1937.

He is the son of Harry A. Wallace, Sr., president of the United Fuel Gas Company of Charleston, West Virginia.

Natural Gas Used in Metal Production

NATURAL gas is used for two unusual types of metallurgical operations carried on in Texas in connection with the production of metals which are essential to the national defense program, according to an article by Paul Reed in the November 28 issue of *Oil and Gas Journal*. This article describes the use of natural gas in making magnesium and antimony. The magnesium operations are at Freeport on the Gulf Coast and the antimony operations are at Laredo on the Mexican border.

Alloys of magnesium are used in the manufacture of tools, and parts for aviation, bus, railroad and other transportation facilities. Antimony is one of the 10 mineral commodities classified as strategic by the U. S. Army and Navy Munitions Board. It is used in the manufacture of storage batteries, babbitt metals, bearings, chemicals, medicinal agents and munitions.

According to Mr. Reed, "The present uses of natural gas in connection with metallurgical operations indicate that natural gas must be regarded as an important factor in the exploitation of mineral resources."

Zimmermann Elected U. G. I. Top Officer

AT a meeting of directors of United Gas Improvement Co., December 27, John E. Zimmermann was elected chairman of the board and will continue as chairman of the executive committee. As chairman of the board he will be senior executive officer.

William W. Bodine was elected president and will be the executive officer in charge of active management.

Natural Gas Wrinkle Contest Ends April 1

ONE of the most interesting projects sponsored by the Natural Gas Section of the American Gas Association is the annual Wrinkle Contest which has for its primary object better and more efficient ways of accomplishing problems which arise in the industry.

Natural gas companies are reminded that this contest runs from May to May and that entries are now being submitted to V. A. Ogilvie, chairman of the Wrinkle Committee; Gas Advisers, Inc., 70 Pine St., New York City. All entries must be in Mr. Ogilvie's hands by April 1, 1941, in order to be eligible for the 1940-41 contest.

As in previous years, wrinkles will be judged under the four classifications of Production, Transmission, Distribution and Safety.

"The Case of the Unidentified Delegates"

ACT I

SCENE: Atlantic City, N. J.
TIME: October, during A. G. A. Convention

Four men, well-dressed, important looking, executive class, walk briskly on Boardwalk toward Atlantic City Auditorium. Photographer steps out, says "Smile please," snaps picture.

(24 hours later)—*Editor, A. G. A.* MONTHLY, *scans boardwalk pictures of convention delegates, selects picture of four handsome men.*

ACT II

SCENE: A. G. A. Headquarters, New York City
TIME: Following week

Editor frantically assembling convention material for next issue, already overdue, attempts to identify picture of four men. Tries every member of staff, only two men are known. No time for further effort, writes caption for picture, goes to press.

ACT III

SCENE: Same
TIME: Week later

A. G. A. Executive enters editor's office waving letter from R. G. Roberts, Chicago, saying he was unidentified in convention issue, demanding to be made "known." Editor ducks barrage, makes excuses, looks at silver lining, says, "Well, anyway, we've found a reader."

(Two days later)—*Amid great commotion, same executive bursts into editor's office, reads letter from Stephen Day, Houston, to wit: "Your November issue carries picture of Elmer Schmidt and Julian Foster, two potent Lone Star Gas men, with* two unidentified *men. Now we will admit that there might very well be times when a man might want to remain unidentified in Atlantic City. He might even prefer to go incognito, but surely an A. G. A. Convention is not one of these times. Apparently, Roberts and I have such low visibility, possibly due to protective coloration, that we blend with the landscape at a few paces. Since the picture came out, it has been suggested that we give up our life work and apply for jobs in the F.B.I. as* under cover *workers."*

A. G. A. executive suggests drinks are on editor but editor is already staggering, though not from drink.

Fadeout shot: *Editor walking down street mumbling to himself. Suddenly, face brightens, says to himself, "two readers"!*

Left to right—Julian Foster, *R. G. Roberts*, Elmer F. Schmidt, *Stephen Day*

Outstanding Gas Industry Executive Dies After Brief Illness

A. B. Groesbeck

A. B. GROESBECK, vice-president and general manager of United Gas Corporation, died Saturday, November 30, at Locust Valley, Long Island, after a brief illness.

Mr. Groesbeck, whose home was in Houston, Texas, was taken ill in October while enroute to the annual meeting of the American Gas Association at Atlantic City. Following adjournment of the meeting he went to the home of his brother, C. E. Groesbeck, chairman of the board of Electric Bond and Share Company, and remained there until his death.

He was an active member of the American Gas Association and had made many valuable contributions to its work. His most recent Association activity was in connection with the annual convention of the Natural Gas Section in Houston last May when he acted as general chairman of the Convention Arrangements Committee. He had also served a number of years on the Office Management and other committees of the Association.

Mr. Groesbeck was a native of Michigan, having been born at Paw Paw, Michigan, March 2, 1878. He was educated in the public schools at Grand Rapids, Michigan, and later attended the University of Michigan, graduating in 1899. In college he was actively interested in football and other athletics and was a member of Alpha Delta Phi Fraternity. He was a life member of the Michigan Athletic Managers Club.

For a decade after his graduation from college, Mr. Groesbeck was engaged in the lumber business in Michigan, Ohio and Louisiana.

From 1909 until his death Mr. Groesbeck was active in the gas business. His first work in this field was in the State of Washington where he joined the Tacoma Gas Company in 1909. Later he was connected with the Olympia Gas Company for two years. From 1912 to 1926 he was with Peoples Power Company at Rock Island, Illinois. For the next succeeding ten years he was associated with the Chattanooga Gas Company at Chattanooga, Tennessee.

In 1935 Mr. Groesbeck joined the staff of United Gas Public Service Company, subsidiary of United Gas Corporation, at Houston, Texas. After the corporate reorganization of the United Gas system, effected in 1937, he became vice-president and general manager of the operating division of United Gas Corporation.

In his work with the United Gas Corporation, Mr. Groesbeck was active in the development of the use of gas for "all-year" air conditioning. His career covered a wide experience in many phases of the manufactured and natural gas business.

Mr. Groesbeck was a member of the Houston Country Club, the Houston Club, the Mountain City Club of Chattanooga, Tennessee and the Bankers Club of New York City.

Win Coveted Life-Saving Awards

Matthew A. Givens *Henry W. Jacob* *Joseph G. Buckley* *Harry J. Tamke* *Albert J. Torborg*

Edward Adamson *Chas. D. Berkebile* *Frederick Gerken* *Peter A. Lang* *George S. Geary*

Wallace S. Venable *Frank J. Winters* *J. A. Morganstern* *L. A. Dickhardt, Jr.* *Edward G. Feltham*

Employees of The Brooklyn Union Gas Company who were awarded McCarter Medals or Certificates for having performed outstanding acts of life saving by the Schafer prone pressure method of resuscitation

McCarter Medals Awarded to 8 Utility Men

A NUMBER of employees of utility companies have recently joined the ranks of those who have been honored with McCarter Medals for outstanding acts of life saving by the Schafer prone pressure method of rescuscitation. These medals, which are awarded by the American Gas Association through the generosity of Thomas N. McCarter, chairman of the board of the Public Service Electric and Gas Company, Newark, N. J., are given only to those who have performed acts of lifesaving above and beyond the call of duty.

Employees of The Philadelphia Gas Works Company, The Bridgeport Gas Light Company, and the Consolidated Edison Co. of New York, Inc., have recently received these coveted awards. Those so honored include: Harold Ackerman, orderman, and Edward Kolek, fitter, both of the customers' service department of The Philadelphia Gas Works Company. The McCarter Medals were presented by Conrad N. Lauer, president of the company and past president of the American Gas Association.

William R. McNiff, of The Bridgeport Gas Light Company, received a McCarter Medal before a special gathering of his associates and in the presence of officers of the company on December 13.

The following five employees of the Consolidated Edison Co. of New York, Inc., received McCarter Medals from C. C. Simpson, assistant vice-president, at a presentation ceremony on October 24: Harold I. Campbell, Theodore M. Roper, John V. Ryan, Theron F. Abrams, and Charles G. Trinker.

Oklahoma Utilities Association

AT a meeting of the board of directors of the Oklahoma Utilities Association held in Tulsa, Okla., Dec. 5, R. K. Lane, president of the Public Service Company of Oklahoma, Tulsa, was elected president of the Association. Other new officers are: first vice-president, W. L. Woodward, president, Zenith Gas System, Inc., Alva; second vice-president, J. C. Happenny, president, Oklahoma Power & Water Co., Sand Springs; treasurer, B. M. Lester, vice-president and treasurer, Oklahoma Gas and Electric Co., Oklahoma City; and secretary, Kate A. Niblack.

The 1941 annual convention of the Association will be held in Tulsa, March 17 and 18. Vice-President Woodward is Convention Chairman.

A. G. A. Chief Statistician Dies Suddenly

Paul Ryan

PAUL A. RYAN, chief statistician of the American Gas Association and head of the Association's Statistical Staff since 1927, died suddenly in his home in New York, December 25. A large delegation of the headquarters staff and many friends of Mr. Ryan's attended funeral services in the Church of the Blessed Sacrament, New York, December 28. Burial was in Susquehanna, Pennsylvania.

A graduate of the Massachusetts Institute of Technology, in 1923, Mr. Ryan joined the New York & Queens Electric Light & Power Co. of New York as power sales engineer in charge of electric power sales and service in Long Island City. In 1925 he was awarded one of the prizes offered by Bonbright & Company in a nationwide contest for the best papers on the development of the electric light and power industry.

To improve further his knowledge of the public utility industry, Mr. Ryan took the two-year special course in public utility management at the Harvard School of Business Administration, receiving the degree of M.B.A. in 1926. Following graduation, he was on the staff of the Harvard Business School and engaged in research in public utility economics under the direction of Philip Cabot, professor of public utility management at Harvard. During this period Mr. Ryan also was associated in consulting work on rates and market analysis for gas and other utilities.

Prior to joining the American Gas Association, he served a year on the staff of the chief statistician of the American Telephone & Telegraph Company, New York, preparing forecasts of general business and economic conditions to be used as a guide for the management of the various Bell System Companies.

On July 1, 1927, Mr. Ryan joined the A. G. A. headquarters staff to organize and develop the Statistical and Rate Departments. He had served continuously in the capacity of chief statistician ever since.

C. A. Dougherty Dies

CHARLES A. DOUGHERTY, vice-president and secretary of the Utility Management Corporation, New York, died December 20. He was 62 years of age. Mr. Dougherty had been associated with Utility Management and its predecessors for 32 years.

Pennsylvania Gas Association

THE Pennsylvania Gas Association will hold a one-day sales conference at the Hotel Benjamin Franklin, Philadelphia, on January 9, starting at 9:45 A.M. An interesting program featuring a "Fashion Parade of Gas Cookery," will be presented.

Among the speakers and their topics are: A. J. Maloney, sales manager, Washington Gas Light Co., "Selling Gas Heating in the Nation's Capital"; B. F. Seiple, vice-president, Jersey Central Power & Light Co., "Water Heating"; and Paul J. Naschold, sales manager, New Haven Gas Light Co., "Gas Refrigeration." Zenn Kauffman, noted speaker, will deliver a luncheon address on "Showmanship in Business."

CONVENTION CALENDAR

JANUARY

Jan. 27-29 **American Society of Heating and Ventilating Engineers**
Hotel Muehlebach, Kansas City, Mo.

FEBRUARY

Feb. 10-12 **Southern Gas Association**
Hotel Adolphus, Dallas, Texas.

12-14 **American Management Association—Personnel Conference**
Palmer House, Chicago, Ill.

17-18 **A. G. A. Mid-West Regional Gas Sales Conference**
Chicago, Ill.

MARCH

Mar. 13-14 **A. G. A. Industrial Gas Sales Conference**
Lord Baltimore Hotel, Baltimore, Md.

17-18 **Oklahoma Utilities Association**
Tulsa, Okla.

27-28 **New England Gas Association**
Hotel Statler, Boston, Mass.

APRIL

Apr. 1-3 **American Society of Mechanical Engineers, Spring Meeting**
Atlanta, Ga.

14-16 **Mid-West Gas Association**
Hotel Nicollet, Minneapolis, Minn.

15-17 **Southwestern Gas Measurement Short Course, College of Engineering**
University of Oklahoma, Norman, Okla.

21-22 **Gas Meters Association of Florida and South Georgia**
Hollywood, Fla.

21-23 **A. G. A. Distribution Conference**
Pittsburgh, Pa.

23-25 **Missouri Association of Public Utilities**
Excelsior Springs, Mo.

24-25 **A. G. A. Hotel, Restaurant and Commercial Sales Conference**
Palmer House, Chicago, Ill.

29-May 1 **U. S. Chamber of Commerce**
Washington, D. C.

MAY

May 5-8 **A. G. A. Natural Gas Section Convention**
Adolphus and Baker Hotels, Dallas, Texas.

8-9 **National Metal Trades Association**
Palmer House, Chicago, Ill.

12-14 **Pennsylvania Gas Association**
Skytop, Pa.

19-21 **A. G. A. Production and Chemical Conference**
New York, N. Y.

20-21 **Canadian Gas Association**
Hamilton, Ontario.

22-23 **Natural Gas and Petroleum Association of Canada**
Hamilton, Ontario.

JUNE

June 2-5 **Edison Electric Institute**
Buffalo, New York.

3-5 **Association of Gas Appliance & Equipment Manufacturers**
Ambassador Hotel, Los Angeles, Calif.

SEPTEMBER

Sept. 8-10 **Mid-West Gas School and Conference**
Ames, Iowa.

OCTOBER

week of 20 **A. G. A. Annual Convention**
Atlantic City, N. J.

Accounting SECTION

E. N. KELLER, *Chairman*
LYMAN L. DYER, *Vice-Chairman*
O. W. BREWER, *Secretary*

Joint A.G.A.-E.E.I. Accounting Conference Sets High Record of Accomplishment

By W. G. MURFIT*

The Philadelphia Gas Works Co., Philadelphia, Pa.

THE first joint accounting conference of the American Gas Association and the Edison Electric Institute was held at Detroit, December 2, 3, and 4. The attendance of 500 accounting executives confirmed the attractiveness of the program, the timeliness of the subjects and the authority of the speakers. All who attended were enthusiastic about each of the sessions and declared their intention to be at all such future meetings.

Much of the credit for the success of the conference is due to E. N. Keller, chairman of the Accounting Section of the American Gas Association, and to G. H. Bourne, chairman of the Accounting Executive Committee of the Edison Electric Institute, and their associates in planning the program. Their careful analysis of the varying needs for information and advice, and weighting the program accordingly, was very evident and so the accountants when they left Detroit found they had been nourished by well-balanced mental rations.

The program at Detroit really began on Sunday, December 1, with a meeting of the Managing and Advisory Committee of the Accounting Section of the American Gas Association. The program for the convention was discussed and plans were presented for subsequent cooperation with the Edison Electric Institute in any future joint meetings. The general opinion of the committee was that accounting sessions might well be continued at the American Gas Association Convention but the mid-year conference could with advantage be a joint one with the Edison Electric Institute.

General Sessions—Tuesday Morning

The first General Session opened at 9:30, Tuesday morning, December 3, with greetings by E. N. Keller, chairman of the A. G. A. Accounting Section. He described briefly the growth of the idea for a joint meeting of the two Associations and expressed satisfaction over the acceptance of the plan by the accountants of both groups.

A. C. Marshall, president of the Detroit Edison Company, welcomed the visitors to Detroit, extended the hospitality of the city and urged every one to inspect his company from end to end.

The Depreciation Accounting Committee of the American Gas Association, through its chairman, H. C. Hasbrouck, of the Utility Management Corporation, then presented its report. From this it is evident that the subject is acute at the present time, for the S. E. C., the F. P. C., many of the state regulatory bodies and utilities generally, have the principle of depreciation under review. In fact, as later developed, the problem of Depreciation Accounting became the major theme of the entire convention.

Dr. W. A. Paton, Professor of Accounting at the University of Michigan, in a paper entitled "Basic Concepts of Property Accounting," outlined the fundamentals of this phase of the accounting problem. He was followed by Raymond H. Berry, of Berry and Stevens, Tax Consultants, who explained some of the new interpretations of the Excess Profits Tax Law.

In his talk "Survival Values," F. Alexander Magoun, Associate Professor of Human Relations at M.I.T., explored the relationship created between employees on the same or on different levels of authority and how it is affected by their actions and reactions each to the other.

The morning session closed with a stirring address on "Americanism" by E. P. Durfee of the National Safety Council.

General Sessions—Wednesday Morning

G. H. Bourne, chairman of the Accounting Executive Committee of the Edison Electric Institute, presided. Greetings to the convention were extended on behalf of the Michigan Consolidated Gas Company by John W. Batten, vice-president of the company.

In a paper "Accounting Aspects of Rate Analysis Technique," F. A. Newton, chairman of the Rate Research Committee of the Edison Electric Institute, cleared up some of the complexities of this involved problem.

L. P. Spacek of Arthur Andersen & Company, Certified Accountants, in an address "Functional Accounting and Simplification of Internal Reports," recommended setting up accounts on a functional basis so each department can budget its own activities for the year and that later it be furnished with a monthly comparison which could be superimposed on the regular system of accounts.

Hon. Nelson Lee Smith, chairman of the Public Service Commission of New Hampshire, speaking on the subject "Regulatory Aspects of Depreciation" informed the meeting that the N.A.R.U.C. has and will cooperate with utility representatives regarding the principles of depreciation charges before making a final report in December, 1941. Only a progress report will be submitted at the N.A.R.U.C. meeting in December, 1940, as many points have not yet been settled. Mr. Smith's address in its entirety was given the closest attention and his appearance before the convention was sincerely appreciated.

J. H. Goetz Esq. of the firm Whitman, Ransom, Coulson and Goetz discussed the vital subject "Has Management Benefited from Original Cost Requirements?" The weight that this basis of valuation has now, or may have in the future, in respect to establishing rate bases, was presented from the lawyer's viewpoint by this expert on these matters.

Evaluating Office Training

When a paper read before a group meeting proves to be so valuable as to justify its repetition at a subsequent General Session, its author should feel highly honored. Such an honor was experienced by George Webber of Public Service Electric & Gas Co. of Newark, for at this point he was unexpectedly called upon to redeliver an address he had given before the Customer Activities Group on Monday morning. The subject was "Evaluating the Office Training Program." Mr. Webber found that there are four distinct ingredients in a complete office training program: Entrance Training, General Training, Customer Relations Training, and Continuation Training. These ingredients have different relative values in the complete training jobs. Then there are fourteen basic media for effecting this training—apprentice instruction, group conferences, manuals, etc. The value of these fourteen media varies among the several ingredients, and Mr. Webber assigned mathematical values to each. The paper was intensely interesting and practicable and is printed in full elsewhere in this issue.

P. S. Young, chairman of the Executive Committee, Public Service Electric and Gas Co., Newark, closed the session. He com-

* Chairman, Accounting Section Editorial Committee.

plimented the officers of the convention on the program they had arranged,—the balance of the subjects and the authorities they had obtained to discuss these subjects. He particularly emphasized the role that the accountant is taking today in the operation of utilities and the increasing dependence by management upon the accountants' figures and opinions.

Tuesday Evening

The delegates and their guests crowded the main floor and balconies of the grand ball room of the Book-Cadillac Hotel this evening. Major Alexander Forward, managing director of the A. G. A., served admirably as toastmaster. Major Thomas J. Strickler, president of the A. G. A., and Colonel Howard S. Bennion, vice-president and managing director of the E.E.I., extended their greetings to the convention. The guest speaker was John T. Madden, Dean, New York University School of Commerce Accounts & Finance. The Dean is famous for his delightful way of discussing serious subjects and so is always welcomed by A. G. A. audiences. He was in fine form, but injected a sad note by intimating this might be his valedictory, as he is contemplating retiring from active work in his field. His subject was "Depreciation."

The evening was concluded by a variety of clever and amusing series of vaudeville acts.

General Accounting Group

This group held an open meeting Monday morning, December 2, with Co-Chairman A. M. Hartogensis of the E.E.I., and O. H. Ritenour of the A. G. A. presiding.

C. E. Packman of the Middle West Service Co., discussed "Plant Acquisition Adjustments" and how they should be handled when they vary from original costs to the owner with particular reference to Going Concern Value and change in price levels.

Edwin Vennard of the same company in his paper "Relating Promotional Costs to Results" described how to set up an accounting system on promotional sales.

W. W. Haight, of Columbia Engineering Corp., outlined the problems, and the solutions thereof, when a holding company is subject to State systems of accounting, which vary from the National system, in presenting his paper "Problems of Uniform Classification in System Companies." John Kramarsik of Connecticut Light & Power Co., then described his company's new system of accounts to become effective Jan. 1, 1941.

On Monday afternoon, this group heard L. C. Jewett of Arkansas Power & Light, describe a plan of accounting procedure in his paper "Putting the System of Accounts to Work."

Next, F. P. Clark of Kansas City Power & Light Co., emphasized the necessity of classifying revenues with sufficient detail to enable the company to answer, simply and intelligently, questions that might be received from insurance companies, bankers, etc., regarding the company's operations.

N. J. Ambrose of Stone and Webster, presented an informal report of the Classification of Accounts Committee of the E.E.I. Reservation was made that the report was not intended to represent the opinions of the E.E.I., or of the industry.

W. F. R. Münnich of the Philadelphia Electric Co., then read a paper on "Problems Relating to the Capitalization of Overheads." He described certain kinds of overheads and suggested methods whereby they could be allocated to particular jobs or units as reasonably applicable thereto.

A. A. Talmadge of Ebasco Services, Inc., in his paper "Budgetary Control," emphasized the desirability of effecting control through properly setting up sufficient sums in the budget well in advance of the actual occurrence of the expenditures.

The open meeting then adjourned, although it was followed by a closed meeting of chairmen of related committees on general accounting subjects from the A. G. A. and the E.E.I. at which plans were made for the next joint meeting to be held in the Spring of 1941.

On Tuesday afternoon, the General Accounting Group held another open meeting under the chairmanship of S. J. Barrett of The Peoples Gas Light & Coke Co. At this time a movie, "Accounting for Materials and Supplies with Mechanical Equipment" as conducted by Consolidated Edison Co., was exhibited by G. McDougall and Walter Bergman of that company. This was followed by a review and discussion of machine accounting methods by K. C. Campbell of the Detroit Edison Company.

W. A. McDonough of Northern Indiana Public Service Company, distributed forms and explained his company's method of machine accounting for both fixed capital and operating costs, including writing checks.

Materials and Supplies Group

W. F. R. Münnich and G. McDougall, co-chairmen of this group, presented a most interesting and instructive program at their Monday morning session. The discussion leaders were: C. H. zurNieden, Philadelphia Electric Co.; Walter Bergman, Consolidated Edison Co. of N. Y., Inc.; K. C. Campbell, The Detroit Edison Co.; J. J. McDonnell, Kansas City Power & Light Co., and A. Skelton, The Peoples Gas Light & Coke Co.

Mr. zurNeiden, in describing his company's method of inventory control, re-

Joint Accounting Conference in session in Detroit

ferred particularly to methods of simplifying procedures and methods of making minor adjustments. On the subject, "Accounting for Minor (exempt) Materials" it was developed that electric utilities have generally adopted a percentage rather than a unit basis for including these items, whereas in the gas industry the costs of major items are surcharged directly on a unit basis for the minor items.

Other subjects discussed during the morning, both by R. H. Celander of Consolidated Edison Co., were, "Maintaining Purchasing Department Price Records" for buyers' use and price approval of invoices, and also "The Traffic Division as a Function of the Purchasing Department."

Monday afternoon found the group divided in a visit to the Detroit Edison Company. Some inspected the company's warehouses and delved into the Stores Accounting system. Others viewed the company's Salvage Storehouse and admired the way it recovered and accounted for repossessed material.

Taxes Group

R. M. Campbell of Standard Oil Co. of N. J., the chairman, in his opening remarks emphasized the importance of the subjects in view of current events and the interest that regulatory bodies as well as utilities are consequently evidencing in the matter. The two discussions, one Monday morning and the other Monday afternoon, revolved around the first and second Revenue Acts of 1940, and the Excess-Profits Tax. The method of handling Depreciation was submitted as of vital importance, and information regarding their respective companies' methods of determination and treatment was exchanged among the members. Particular analysis was given to the practice occasionally followed of using one method of accruing depreciation for tax purposes and another method for rate purposes.

Plant Records Group

Monday morning, December 2, was devoted to separate organization meetings of the Plant Accounting and Records Committee of the E.E.I. and the Property Records Committee of the A. G. A. Most of the time in each was devoted to planning activities for 1941, frequency of meetings and effecting cooperation with corresponding committees of the other organization. The members of both committees met for a joint luncheon at 12:30.

At 2:00 P.M. the committees met in a joint open forum session, E. F. Wressell of Northern Indiana Public Service, and H. B. Hardwick, of Commonwealth and Southern Corp., acting as co-chairmen. The discussion brought forth interesting experiences with regulatory bodies as a result of the cost study filings made. G. T. Swisher of the Potomac Edison Co., led the discussion. Then C. F. MacRae of Whitman, Ransom, Coulson and Goetz, attorneys, outlined proposals for the disposition of plant acquisition adjustments. G. M. Vesselago of Day & Zimmermann and S. H. Cady of Rochester Gas & Electric Corp., explained the necessity of Continuing Property Records and desirable refinements thereof balancing their usefulness against the cost of their maintenance. Finally, C. E. Raines of Niagara Hudson Power Corp., and V. Farnsworth of Boston Consolidated Gas Co., explained methods of measuring construction overhead costs and of allocating them among the projects currently under way.

The Plant Records Group met again informally Tuesday afternoon with Messrs. Wressell and Hardwick again presiding. The important subject of maintaining unit property records with due regard to original costs and plant reclassifications was discussed by W. G. Pilgrim of The Peoples Gas Light & Coke Co., and S. L. Ferguson of The Detroit Edison Co. Then a different viewpoint, i.e., where detail records are avoided, was presented by H. M. Tickle of the Commonwealth & Southern Corp., and S. W. Kittleman of Arkansas Power & Light Company.

The members listened with the greatest interest to M. W. VanScoyoc, chief of the Division of Original Cost, Bureau of Accounts, Finance and Rates of the Federal Power Commission, who outlined the views of F. P. C. regarding establishing original cost bases for plant value.

H. P. Taylor of Wisconsin Public Service Corp., encouraged the members with his suggestions on simplifying procedures for limiting details in maintaining records of distribution plant. Engineering estimates in making retirements depend upon a proper recording of the costs of constructing the units of property and means of assuring this facility were suggested by S. F. Kosters of Stone & Webster Engineering Co., and by A. A. Lipschutz of Philadelphia Electric Company.

Helpful advice on methods of simplifying records of charges applicable to Construction and Retirement Work in Progress was advanced by J. V. Cleary of Consolidated Edison Company and J. L. Sunday of Philadelphia Electric Company.

This most interesting and instructive meeting was closed by a discussion of the extent to which records of Retirement Units should be segregated and detailed. C. E. Shields of Michigan Consolidated Gas Company, and H. W. Endres of American Gas and Electric Service Corporation led this discussion.

Accounting Conference Papers Available

Papers presented at the Fourth National Accounting Conference including all of those delivered at the general sessions and most of those given before the individual group meetings have been mimeographed and are available at the following prices:

The entire group is $2.00 a set. Individual papers are 15 cents each.

Address your orders to the American Gas Association or the Edison Electric Institute, 420 Lexington Avenue, New York, N. Y.

Customers' Activities Group

J. A. Williams of Niagara Hudson Power Corp., for the American Gas Association, and L. A. Mayo of Connecticut Light & Power Co., for the Edison Electric Institute, and their associates on the Program Committee had arranged an interesting session of broad scope. Monday morning C. L. Sullivan of The Peoples Gas Light & Coke Co., described his company's method of sampling service through asking customers by mail regarding work that had recently been done by company employees. J. A. Williams then showed conclusively that lenient collection policies not only are profitable from a Customer Relations standpoint, but do not result in increasing charges to uncollectible accounts.

It was evident from the comments of those present that the paper of G. B. Webber of Public Service Electric and Gas Co., "Evaluating the Office Training Program," will be considered a fundamental in planning any training program. This concluded the morning session.

Monday afternoon the Customers' Activities Group, in an open meeting, was treated with two presentations of machine accounting. A. W. Fyfe of Consolidated Edison Co., explained "Customers' Accounting under the Alphabetic-Numeric Electric Tabulating Card Plan." This plan enables a company to use but one tabulating card for printing not only the customer's name but also the quantity of energy and the amount of the bill.

D. C. Daubmeyer of Detroit Edison Co., then described his company's "Mechanization of Cash Receipts." Here the bill, designed in size and form to register with a punched card, permits the cash stub of the bill to be punched to indicate the charges. Then, when this stub is returned with remittance, total balancing and detailed classification are performed mechanically.

This group, Customers' Activities, split into three sections and each held a luncheon conference Tuesday.

W. D. Dyer of Boston Edison Co. was the Discussion Leader of the Credit and Collections Luncheon. The subjects were:

Improving collections by analyzing paying habits.
Planning field collection schedules.
Reduction of collection costs. What is being done?
Collection of final bills.
Training collection personnel—office and field.

The Customer Accounting Luncheon, under the leadership of A. W. Fyfe of Consolidated Edison Co., discussed:

Accounting problems resulting from national emergency.
Reduction of customer accounting costs. What is being done?
Meter reading on punch cards.
Meter reading routes and suburban growth.
New developments—billing and accounting system.

The Customer Relations Luncheon discussed:

The national emergency—effect on customer relation practices.
Successful methods of analyzing complaints.
Service sampling—objectives and results.
Billing practices and building good will.
Trends in contact employee training.

W. G. Murfit of The Philadelphia Gas Works Company, was the discussion leader. R. B. Grove, vice-president of Consolidated Edison Co., was present and gave the group helpful advice on the subjects under discussion as garnered from his experience.

On Wednesday afternoon time had been set aside and arrangements made with the local companies for the Customers' Activities Group to visit the Michigan Consolidated Gas Company and the Detroit Edison Company.

Depreciation Accounting Group

This group under the chairmanship of H. L. Gruen, of Baltimore Consolidated Electric Light & Power Co., for the Edison Electric Institute, and H. C. Hasbrouck of Utility Management Corporation, for the American Gas Association, held a closed meeting Monday afternoon.

On Tuesday afternoon an open meeting of real and immediate value to accountants was held by this group. H. L. Gruen outlined the current problem in his paper "Depreciation Progress in the Making." M. D. Hooven's report of the Engineering Subcommittee was read by P. H. Jeynes of Public Service Electric & Gas Co. Maurice R. Scharff, Consulting Engineer, emphasized the importance of straight line depreciation charges and the attention this method is receiving from regulatory bodies today, in his address, "What Can and What Cannot Be Measured in Respect to Depreciation."

"Interest as a Factor in Depreciation," often overlooked, was called to the attention of the delegates and they were urged by A. W. Hastings, Engineers Public Service Co., to include it properly in their computations. Mr. Jeynes again addressed his audience briefly when he presented "Some Aspects of Straight-line Depreciation." The paper itself is very worth studying in view of the importance of this subject today. Finally Alexander Maxwell of the Edison Electric Institute reported on the progress his Association is making in codifying and indexing the complete story of "Depreciation." Mr. Hasbrouck closed the meeting with a neat summary of the salient points covered by the speakers during the session.

Sight-Seeing Trip

On Wednesday afternoon many of the delegates selected either of two trips to Detroit points of interest. The Ford Motor Company invited guests to inspect Greenbelt Village and the Ford Museum. The Chrysler Corporation invited an inspection of its plant. All who went on either of these trips enjoyed an interesting afternoon and expressed great appreciation for the courtesy of the host companies.

Accounting Executive Dies in New York

Ernest C. Scobell

ERNEST C. SCOBELL, vice-president in charge of finance and comptroller of the Rochester Gas and Electric Corporation, Rochester, New York, died December 11 of a heart ailment after an illness of six weeks. Mr. Scobell had been associated with the Rochester company for more than thirty-six years and was nationally known in utility accounting and auditing circles. He was sixty-three years old.

In addition to his activities in the utility business, Mr. Scobell was a prominent participant in many community affairs. At the time of his death he was serving his sixth term as president of Rochester's largest and oldest social organization, the Rochester Club. He had been a member of the Chamber of Commerce for thirty-four years and for many years was associated with Oak Hill Country Club and the Rochester Yacht Club. He was also a member of the Transportation Club of New York, the Edison Electric Institute and the American Gas Association.

Born at Cape Vincent, N. Y., Mr. Scobell attended high school in Kingston, Ontario, and went to Rochester more than forty years ago. He took his first job with the utility company in 1904 as a junior accountant in the payroll department.

In 1907 he became auditor and in 1929 was made general auditor and comptroller. In 1932 he was appointed vice-president in charge of finance, retaining the office of comptroller.

Mr. Scobell was credited for his pioneering work as a member of the accounting committees of the American Gas Association, the Edison Electric Institute and the Empire State Gas and Electric Association. He was one of the committee which created the first uniform system of accounts to be accepted and used by utilities.

He was for many years a director of the Utilities Mutual Insurance Company and formerly was president of the Empire State Gas and Electric Association.

Mr. Scobell is survived by his wife, Mildred Stafford Scobell, a son, John C. Scobell and a daughter, Marion E. Scobell.

Important Announcement by the President

At its regular meeting on December 5, the Executive Board of the American Gas Association took the following action:

"The individual members of the American Gas Association who enter the Military or Naval forces of the United States will retain their membership without payment of dues for one year and forty days from the date of entry into service. All membership services will be supplied while members are on active duty."

It is important that the Secretary of the Association be advised of the *exact date* on which a member reports for military or naval service and the camp or station to which he is assigned.

The member's name will then be placed on a *Special Roll* and his dues will be adjusted in accordance with the action of the Executive Board.

T. J. STRICKLER
President

Mirror Device Speeds Auditing of Checks

WITH some old pieces of mirror which he found at home, Thomas J. Casey, of The Peoples Gas Light and Coke Co., Chicago, designed a simple device which expedites the checking of signatures on the reverse side of cashed refund checks in his department. By holding the signed check over the lower mirror, the auditor can observe both the signature on the bottom and the addressographed name on top at a glance.

The company's suggestion committee recently presented thoughtful Mr. Casey with a final cash merit award of $15 and authorized the carpenter shop to make two of them for use with the check auditing work.

—Gas News.

Boil Down Your Mailing Lists

IT will pay you to take advantage of a slack period to check your mailing list, Dartnell advises in a recent News Letter. Make sure that every name is alive, that the address is correct, and that the name really represents a potential buyer.

Mailing lists have a bad habit of accumulating barnacles, it is pointed out. "It is not uncommon for more than half the names on a list to be almost worthless. As a result, hundreds of dollars are spent working these names, which could better be spent to do a more intensive job on those names which are positively known to be good."

If you are one of the few who can boast of a mailing list that is free from dead wood, you are to be congratulated.

What the American Public Wants in New Homes

By Bernard L. Johnson

Editor, American Builder, Chicago, Ill.

Bernard L. Johnson

AFTER just about ten years of recession and stagnation, home building is again on an expanding cycle. Retreating from a high of 937,000 new dwelling units built in 1925 to a low of only 54,000 in 1933—a shrinkage of 94 per cent—residential construction in the United States has staged a dramatic and consistent comeback since the autumn of 1934.

With no reversal in the upward trend for six years, home building is now going forward at the rate of 500,000 new dwelling units per year. 1940 is running 10 per cent ahead of 1939 and building industry forecasters generally are predicting a still greater volume for 1941.

Homes for Every Pocketbook

The homes being built today reflect the taste and pocketbook of the typical American family of the present day. It is a very different house than was current back in the twenties. It is smaller, more attractively designed, more completely equipped, lower in cost and much more sanely financed. A greater proportion of the homes built are down in the price range of low- and moderate-income families, where real volume can be attained. Genuine mass housing is here, and that, too, in the good American way of private industry and private initiative without government subsidy.

Under today's long-term, low-interest-rate mortgage system, individuals can buy or build and pay off monthly "just like rent"—including interest, taxes, insurance and payment on principal. This plan leads to complete ownership and independence in 15, 20 or 25 years—all paid out of the customary family budget for *security* and for pegging shelter costs at the present relatively low level that evidently is having a very strong appeal, today, to a great many people.

A characteristic of present-day home building is emphasis on step-saving arrangement and labor-saving household equipment. The house structure has grown smaller; but its equipment for the business of living has been enlarged and perfected. The trouble-free, smooth-running servantless home is the ideal of our present building era—a little house on a fairly large piece of land, out away from congestion, gracefully designed, moderately well built, smartly styled, decorated and furnished and supplied with all manner of kitchen, bathroom and basement equipment.

Gas for the "Four Big Uses" is a prominent fact in the new homes of America now planning and building; and the building fraternity of the nation as well as the housewives and home buyers owe a debt of gratitude to the American Gas Association and to its local utility members for the constructive educational work done to establish gas for house heating, cooking, refrigeration and hot water supply so thoroughly in the public conscienceness and approval.

Even the smaller homes of today are notable for their beautifully designed and well equipped kitchens, bathrooms, utility rooms or basements.

Survey of Fuels and Heating

Noteworthy in the present active home building market is the growing preference for gas heat. The American public is evidently sold on automatic controls for the home heating plant to provide uniform warmth and comfort at all times without personal labor or attention. Gas as a fuel for house heating plants lends itself perfectly and most easily to thermostatic control and at the same time is clean, efficient and space-saving. These traits put it in line with present home design trends: (1) if there is a basement to develop it as a game room or recreation room, or (2) if there is no basement to provide, off the kitchen, a small utility room for the heating plant.

Recently, the *American Builder* made an investigation among 1000 active building men (typical readers) to find out what type heating plant and what fuel are used in their own present homes, and what type they would install if building again *for their own family use*. We wanted to see what the men who really know building would use in their own homes, and in that way find out what they are recommending to owners and clients for whom they build.

Returns from 45 states showed 60 per cent now burning coal, 23 per cent oil and 17 per cent gas. However, *if choosing, today,* these active building industry men would install plants thus: 30 per cent coal, 36 per cent oil and 34 per cent gas—only 12 per cent of those now heating their homes with gas indicated that they would change to coal or oil while 50 per cent of the coal users and 22 per cent of the oil users reported that they would prefer some other type of fuel for their own home heating use.

Of these active building industry men, 40 per cent are now heating their homes with gravity warm air furnaces, 22 per cent with forced circulation warm air plants, and 38 per cent with boiler-radiator systems. *If building new,* however, these men report that these percentages would be changed to 8 per cent gravity warm air, 56 per cent forced air and 36 per cent boiler-radiator jobs.

Presumably, these preferences on the part of active building industry men, who are in consultation every day with the building-minded public, are exerting a strong influence on the choices that are being made for the heating equipment now about to be installed.

Great Potential Demand

The importance to the gas industry of cultivating the new home market arises from the fact that the new homes put up in any neighborhood serve as models for the remodeling and reequipping of many of the older homes. The building industry has a great advantage in selling its goods and services. Homes are both *needed and desired*. Shelter, one of the three prime necessities for human existence in the North American climate, is also one of the basic sentimental urges of the human heart. To possess and occupy a home is a dominant motive with almost everyone.

As the nation's population grows and as it shifts from country to town and from town to suburb, as new marriages and new families are formed, as old houses become dilapidated and are remodeled or torn down, as styles and modes of life change and new types of houses in new locations are called for, a great "potential" of home building demand is created. Statistical experts agree that today this piled up need for new homes is the greatest in history. It is estimated at from two million to four million family units—enough to keep the building industry operating at top speed and volume for a number of years.

And on top of this stark need for shelter

Address before A. G. A. Convention, Atlantic City, N. J., October 9, 1940.

or "housing" there is also this deep and fundamental urge to home ownership which drives both young men and families on to buy or build, making the biggest and most important financial commitment of their lives, in the majority of cases.

And so the business men of the great home building industry have the benefit of these two prime market facts, an unlimited potential of building need and a strong human urge toward satisfying that need. The people want homes—good homes, small homes, low-cost homes. They have quite definite ideas about the type and style of home they want. They have, most of them, been building up in their mind's eye—or in a scrap book—the composite picture of what that new home is to look like and what it is to contain. When they get around to invest their savings *that* is what they want.

Now these facts have a lot of meaning to those builders who are building homes for sale and for all others in the industry who are concerned with promoting home building or with increasing the volume of sales of home building materials and equipment. Sound promotion and sales work obviously should be in line with what the people want and can pay for.

12 Points in Home Demands

In the summer of 1927 a building industry campaign was launched to change the price-thinking of the nation in respect to homes. Great strides had been made in reducing building and owning costs and in adding new values, unknown a decade ago. The theme "more house for the money" was taken up by advertisers and salesmen; and the outstanding values in the new model homes were successfully impressed on potential buyers. A great wave of home building resulted and thousands got the advantage of a good modern home at a reasonable price.

In this more-house-for-the-money camgaign these were some of the features that were emphasized and they turned out to be just about what the American public wanted:

1. Good Design—Simplicity, with more of the building dollar going into livability—less into ornamentation.
2. Lower Maintenance Cost. Sound construction and fewer frills eliminate many items of upkeep.
3. Complete Kitchen Equipment. Refrigeration, range, cabinet units all included under the original financing.
4. Beautiful Multiple Baths. Where one bath was enough in 1928—you now often find two baths and a lavatory.
5. Automatic Heating System. Clean and labor saving. Air conditioning assures complete circulation.
6. Automatic Water Heater. Plenty of hot water whenever you want it—at the turn of a faucet.
7. Quality Hardware—and lighting fixtures restyled to harmonize with home design.
8. Sufficient Electric Outlets. Plug-in lamps and appliances wherever you wish—there's always a place.
9. Wrapped in Insulation. Homes are cooler in summer—easier to heat in winter when insulated.
10. Weatherstripped—Caulked—Storm Windows. Extra protection against dampness and drafts—help cut fuel bills.
11. Basement Recreation Room. Converts 15 per cent of otherwise wasted space into a center of family fun.
12. Large Landscaped Lots. Planned developments and rigid restrictions create better environment.

Home Ownership Means Security

In these days of war and uncertainty, of disturbed investment values and the practical certainty of higher living costs and advanced rentals, a new motive to home ownership is coming to the front. Many are deciding that money invested in a home is pretty apt to be the safest, under present conditions and outlook. For a well designed and well built house always has a current *use value* to the owner, regardless of its market price and regardless of what may be happening to stocks, bonds, currencies and other tokens of ownership. Shelter we all must have; along with food and clothing it is one of the Three Essentials; and the family that puts its savings into a home always can be sure, come what may, that one of those three is safe and will not jeopardize the other two.

Home building and home owning also have a patriotic meaning, today, of real importance. An old saying has it that a man will fight for his home—not for his boarding house; and thoughtful people are realizing anew, in these last few months, the importance to the nation's defense of widely distributed home ownership. So, while we forge our cannon, let's not overlook something equally vital—defense at home. What I get out of this national defense program is that the building industry has been given a new responsibility—to spread home ownership ever wide, to put America's people in homes of their own. "Fifth columns" do not march out of the ranks of home owners.

So, the active men of the home building and allied industries have their own patriotic job to do in this year of national defense endeavor. "Build a Home Now for Security"—using our current slogan—may express the acme of what the American public now wants in its new homes.

Gas Refrigerators Have Face Lifted for '41

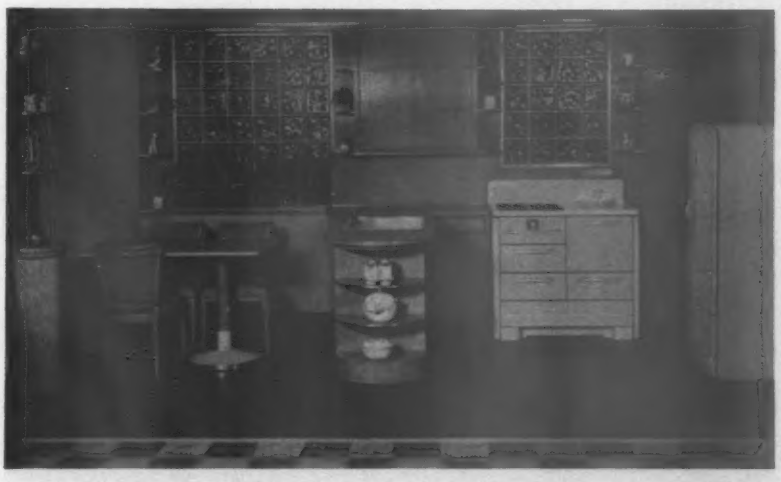
GAS-FIRED refrigerators have had a real "face-lift" for '41.

Mrs. Homemaker can sit up and sigh in homemaker's bliss over these shapely Electrolux models that sport the new refrigerator fashions for the new year!

They're brighter, more beautiful, more flexible than ever before. Re-designed inside and out, no possibility has been overlooked in giving women what they want in a refrigerator, as indicated in a comprehensive survey of the women themselves.

New features, new flexibility and new storage space are to be found in this refrigerator which is silent as a breath.

Another Striking All-Gas Model Kitchen



Ultra-modern all-gas kitchen built by the Michigan Consolidated Gas Company at Grand Rapids for display purposes on the ground floor of the new annex to the company's office building. The color combinations make the kitchen one of striking beauty. The floor is a dark blue, the counter tops and part of the walls are coral, the glass blocks of course have a green cast, and the chromium and splashes of color in the items on the shelves provide contrast. The backs and seats of the chairs are one shade of blue

Home Service Department Conducts Red Cross Canteen Course

Frances McBeath

AT the request of the American Red Cross, the home service department of the Virginia Electric and Power Company has completed a training course in Volunteer Canteen Work for the Red Cross of the Norfolk Chapter. This activity was carried out under the direction of Frances McBeath, home service director of the company at Norfolk, Va.

The purpose of the course was to train volunteer workers in the buying, cooking and service of food in large quantities, during war and emergency periods. At this particular time, the Red Cross is seeking to strengthen such volunteer service in Norfolk as part of the National Defense Program.

Volunteers were secured by direct contact from Captains of particular sections to women whom they thought would be especially suitable for work in such emergencies. From October 15 through October 31, a two-hour class was held each Tuesday and Thursday with an average attendance of 30 women. Thirty minutes of each class was given over to the demonstration of appliances. For three lessons a gas range was used and for the other three, an electric range. Besides these major appliances, one "plug-in appliance" was used at each meeting. By quickly and easily turning out attractive food, the women were interested in duplicating these results.

Notebooks were kept containing all the lessons and were brought in and graded before certificates could be awarded. To retain their certificates and uniform pledges, the women are required to give at least 18 hours in service annually. This can be done by assisting other groups in the preparation of noon lunches for school children with the preservation of fruits and vegetables and with the preparation of nourishing, inexpensive foods suitable for hospital or invalid use.

A most interesting and helpful part of the program was a talk on "Buying, Grades and Specifications of Canned Foods" by a representative of National Canners Association, Washington.

A demonstration on "Meats" and the "Cutting of Meats" was given through the courtesy of D. Pender Grocery Company. A half side of beef was cut up and various cuts were actually shown. The demonstration was most practical as well as interesting. At this particular meeting, all members of former canteen classes were invited.

A Home Service appliance demonstration given in connection with the Red Cross Canteen Course

A field trip was made to the Norfolk General Hospital through the courtesy of the dietitian, who is also on the food board of the Norfolk Chapter Red Cross. The object of this trip was to give the women the opportunity of actually seeing food served cafeteria style which was the method taught in class.

Most of these women had never before been contacted by the company and they undoubtedly regard the company with more warmth and respect as the time of the home economist, the equipment, and materials used were donated for the betterment of Red Cross work in Norfolk.

Special Promotional Activity Stimulates Holiday Cookie- and Cake-Baking

AS a special Christmas promotional activity, the Public Service Electric and Gas Company of New Jersey carried on a unique and effective drive to stimulate greater interest in cookie- and cake-baking in its territory. Spearhead of the activity was an attractive illustrated booklet entitled "Make Christmas Gifts in Your Kitchen" which was distributed to all customers. Printed in bright colors with a personal touch and a romantic theme, this booklet drove home the possibilities of Christmas baking and candy making.

Another phase of the holiday activity was a Christmas cookie-baking contest for all girls in the Orange and Livingston, N. J. areas. Open only to grammar and high school girls, the contest was held from October 22 to December 5 under the direction of the home service department. In all 650 school girls went into the Orange home service kitchen for cookie baking lessons which were held three days a week for seven weeks. Four modern CP gas ranges with two bake ovens each were used, with the girls doing all the preparation and baking under supervision and taking the cookies home. About five or six hundred cookies were made at each lesson, or a total of from 12,000 to 15,000 cookies over the entire contest period.

Some of the girls who took part in the Christmas cookie-baking contest

The final contest in which there were 101 entries was held on Friday, December 13 and prizes were awarded in three divisions: (1) Best Cookies, (2) Best Wrappings or Containers, and (3) Combination of Best Gift Wrapping and Best Cookies.

Judges in the cookie contest consisted of local high school economics teachers, newspaper, social and women's page editors, and Jessie McQueen, home service counsellor of the American Gas Association. The contest was conducted under the direction of Loretta J. Brady, home service consultant, Orange, assisted by Mary Stalter and Mary Bruder, home service consultants of Orange and Elizabeth offices respectively, Public Service Electric and Gas Company.

National Home Service CP Range Contest

NATIONAL honors and 29 cash prizes totaling $500 will be awarded home service representatives for the best CP gas range demonstrations in a contest just announced by the Home Service Committee of the American Gas Association. The A. G. A. committee is sponsoring the contest and the prizes are donated by the Sales Promotion Committee of the Association of Gas Appliance and Equipment Manufacturers.

Members of a home service department of any gas company in the United States and Canada are eligible to enter the contest which is confined to demonstrations of CP ranges in script form. Rules of the contest prescribe that the script should be suitable for a demonstration of not more than 25 minutes. It should be original, dramatic and effectively sales-slanted so as to highlight the features of the CP range and the superiority of gas as a fuel. It should be designed for a demonstration to be used at salesman and dealer meetings and before customer groups.

The entries will be tested and judged on three points: (1) Slogan—a CP range slogan title suitable for permanent publicity purposes such as "Win with CP," (2) Script—originality, value for use, adaptability, etc., and (3) Demonstration mechanics.

First prize in the contest is $100, second prize—$75, third prize—$50, fourth prize—$25, and 25 additional prizes of $10 each. Prize winners will receive national publicity and copies of the winning demonstration scripts will be available to home service departments from coast to coast.

Colleen Fowler, Kansas City Gas Company, and W. E. Bolte, The Brooklyn Union Gas Company, are members of the Contest Committee. Albertine Berry, Lone Star Gas Company, is chairman of the Home Service Committee.

All entries must be sent to the Home Service Counsellor, American Gas Association, 420 Lexington Ave., New York, N. Y., postmarked before midnight, March 15, 1941.

Gas Appliance Sales Rise Sharply

WITH December business yet to be added, 1940 sales of appliances by The Brooklyn Union Gas Company totalled 33,669 units, exclusive of 25,514 miscellaneous small appliances such as toasters and laundry stoves.

Included were 9,909 ranges, 17,500 refrigerators, 2,974 water heaters, 1,911 house heaters and 409 space heaters.

Appliance business for the first 11 months aggregated $3,318,151.89. The total was made up of $1,891,827.80 in retail domestic sales, $1,198,555.85 in wholesale domestic sales, $177,250.15 in commercial sales, $47,310,01 in industrial sales, and $3,208.08 in miscellaneous sales.

National winners of the 1940 4-H Club Food Preparation Project. Left to right: Jane Tiffany Wagner, Servel, Inc.; Edna Lavender; Pat Graham; Joan Taylor; Dorothy Brusch; Lillian Pautz; Tom Harmon, guest speaker; Grant Fink, Servel, Inc.; and B. T. Franck, chairman, A. G. A. Refrigeration Committee. In front of Mr. Harmon is Marion Cottrell

Outstanding Girl Cooking Champions Win College Scholarships in Contest

FOR the sixth consecutive year, Servel, Inc., of Evansville, Ind., manufacturers of the Servel Electrolux gas refrigerator, awarded college scholarships to national winners in the 4-H Club Food Preparation Project, part of the extensive program of the National Committee on Boys and Girls Club Work. Official announcement of the 1940 winners was made in Chicago during the 19th National 4-H Club Congress (Nov. 29-Dec. 7) at a banquet in the Drake Hotel given by Servel in honor of America's outstanding farm girl cooking champions.

A distinguished audience of men and women prominent in gas industry, governmental, educational and agricultural circles attended the annual banquet at which Miss Jane Tiffany Wagner, director of Servel's Home Economics Department, officiated as hostess, and Grant Fink, Servel regional sales manager in Chicago, was toastmaster.

Tom Harmon, Guest Speaker

Guest speaker was Michigan's All-American halfback, Tom Harmon, whose unheralded appearance caused considerable stir among the young champions to whom Harmon's football accomplishment is legend.

Among those attending was Bernard T. Franck, vice-president of the Milwaukee (Wis.) Gas Light Co., and chairman of the American Gas Association Refrigeration Committee. Other members of the committee present were C. V. Sorenson, of the Northern Indiana Public Service Co., Hammond, Ind., and B. H. Wittman, of The Peoples Gas Light & Coke Co., Chicago. F. X. Mettenet, vice-president of The Peoples Gas Light & Coke Co., also attended.

This year more than 75,000 girls in 35 states participated in the Food Project. Servel's 4-H Club activity is under the direction of its Home Economics Department. Louis Ruthenburg, president of Servel, is a board member of the National Committee on Boys' and Girls' Club Work.

The six young women, to each of whom was awarded a $200 college scholarship are: Edna L. Lavender, 16, of Jefferson, Georgia; Joan V. Taylor, 18, of Adrian, Minnesota; Pat Graham, 16, of Fayetteville, North Carolina; Dorothy Brusch, 18, of Canby, Oregon; Marion Cottrell, 17, of West Kingston, Rhode Island, and Lillian Pautz, 20, of Horicon, Wisconsin.

Participants in the Food Preparation Project, ranging in age from 15 to 21 were judged on the basis of the most outstanding records made in planning, preparing and serving of food. This included proficiency in balancing budgets and menus, the fine points of purchasing food, and the modern methods of preserving it.

From the many county winners, all of whom received gold medals, state winners were selected. These state winners were awarded by Servel with all-expense trips to the Chicago Congress, where six national cooking champions were chosen.

The Food Preparation Project is conducted jointly with the extension services of state agricultural colleges and the U. S. Department of Agriculture.

Mystery Chef's Cook Book in Demand

THE cook book by the Mystery Chef, "Be An Artist at the Gas Range," is still enjoying a steady demand from persons who listen to the Chef's broadcasts twice a week over Philadelphia Station WCAU. Sponsor of the program is Tetley Tea. Copies of the book may be obtained by forwarding twenty-five cents and the top of one package of Tetley Tea to Station WCAU. Companies that are still receiving requests for the cook book should convey the above information to their customers.

A. G. A. Combined Exhibit at National Power Show Does Double Selling Job

IT'S a crucial year for those who would sell to industry. Defense business is booming, and orders are big. Yet no wise business man dare neglect his "normal" markets—the stable diet which will feed him "after the armistice." For this reason the A. G. A. Combined Industrial Gas Exhibit at the 14th National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, December 2-7, had a double selling job to do. It was up to the gas industry at the Power Show to convince 40,000 engineers and executives representing over 58 different industrial classifications that (1) non-residential gas utilization is modernized and geared up to meet today's extraordinary demands, and (2) when the world calms down again gas will be right there plugging along effectively and efficiently at the job of supplying industry's heat requirements.

Sponsored jointly by the Industrial and Commercial Gas Section of the American Gas Association, The Brooklyn Union Gas Co., and Consolidated Edison Company of New York, Inc., the A. G. A. Combined Exhibit at the National Power Show included 30 industrial gas-fired units or pieces of equipment produced by 13 leading manufacturers—the assortment being such that, no matter what were the specific heating needs of the visitor, at least one of the 30 units was designed for the type of job in which he was interested. Advanced equipment for heat treating, melting, air heating, dehumidifying, space heating, temperature control, steam generation, water heating, cutting, soldering, gas-air proportioning, forging, and all manner of special applications, was shown.

More than 600 square feet of space were occupied, with 44 feet of frontage along one of the four major aisles of the main floor area. Commanding orange, with flame designs in brilliant yellow and brown, afforded a flattering color scheme for setting off the equipment shown. The slogan, "GAS in industry," appeared in huge cut-out letters on the backwall, while the familiar trend-chart used in all non-residential A. G. A. advertising was enlarged to giant proportions to emphasize an important sales point on the display side walls. Irregular black and brown shapes artistically disposed near each piece of equipment proclaimed the virtues of the appliance, and gave the manufacturer's name.

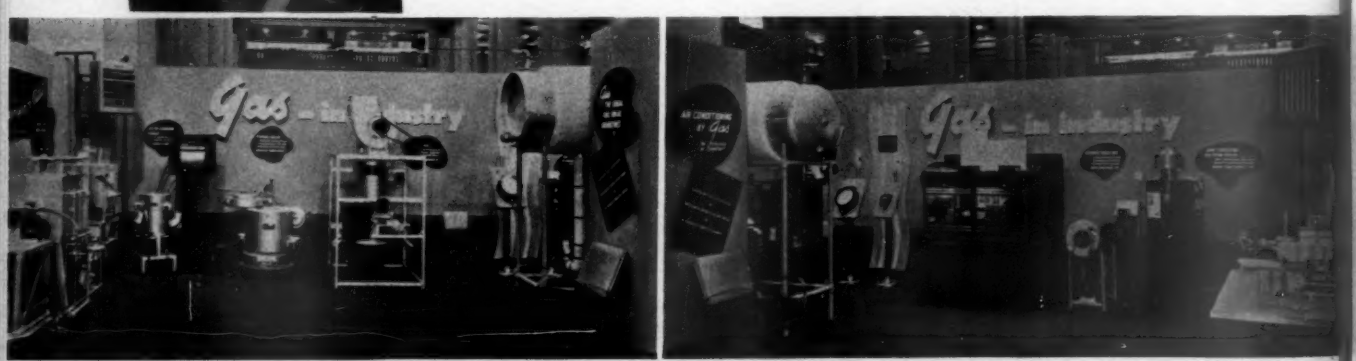
Manufacturer and utility representatives made sure that every visitor's questions were answered

400 Worthwhile Sales Leads Reported

At least a dozen industrial gas men manned the exhibit at all times. This "sales force" was comprised of representatives from the Industrial and Commercial Gas Section of the American Gas Association, both cooperating utility companies, and representatives of the manufacturing firms whose wares were on display. To prove the sales effectiveness of the effort and insure adequate follow-up after the show, specially printed prospect forms were filled out by each gas industry representatives whenever a discussion with a visitor got down to specific plant problems. Between 300 and 400 such "leads" were collected, and will be distributed among the producers of the equipment involved as well as among the utility companies all over the country in whose territories prospects' plants are located.

In the heat treating classification, units for the clean hardening of small metal parts in bulk, for tool and die hardening, and for pot cyaniding were shown. One of these boasted a shaker-type hearth offering, at once, controlled continuous movement of work through the furnace without the heat loss of alternate heatings and coolings of conveyor mechanisms, and atmosphere protection from the charging opening straight through to the quench.

One of the full-muffle furnaces was continuously operated at 2400° F. (this tem-



Note the variety of factory equipment exhibited—so that no matter what the exposition-goer's heating needs, gas equipment for the job could be demonstrated

A. G. A. officers and committeemen see the show: Left—Major Alexander Forward, managing director; Major T. J. Strickler, president; Eugene D. Milener, secretary, Industrial and Commercial Gas Section. Right—The General Sales Committee of the Industrial and Commercial Section, George F. B. Owens, chairman

A bird's-eye view of the interest shown in miscellaneous controls, burners, and bench appliances

John A. Malone, Consolidated Edison Co. of N. Y., Inc., and chairman, A. G. A. Committee in charge of the gas industry display, discussed dehumidification with C. D. Frazer, The Brooklyn Union Gas Company

perature being continuously recorded on a suitable instrument), even though the firing was atmospheric—neither gas compressor nor air blower being required. In addition, an inexpensive bench forge, which could be converted to a tiny under-fired oven furnace for heat treating by the simple replacement of a few refractory blocks, created considerable interest. Brass, aluminum and copper melting was represented by a tangentially fired crucible-type unit employing a low pressure air proportioning system. Weight was reduced and fuel saved through the use of light but effective insulating refractories.

The vast field for hot air applications—tempering, core baking, product drying, finish curing, and myriad other convected and recirculated air adaptations—was represented by a direct-fired air heater (with alloy fan on the exhaust end) operated by the latest type of safety, ignition, and temperature control equipment. Mirrors were disposed about the displayed unit so that exposition-goers could see the complete cycle of operations inside the unit shell.

The growing market for process and comfort air conditioning through dehumidification was served through the latest model of continuous rotary silica gel unit. Simplified diagrams and charts made it easy to explain the functioning and attributes of such installations. At both corners of the display, unit heaters were mounted in a manner similar to actual factory usage—with fans operating and ribbon streamers attached to the outlet louvres in order to show the simple aiming-of-heat-where-you-want-it attainable with such appliances.

Recognizing the trend towards developing process steam in individual boilers serving individual production lines, a 5 h.p. gas-fired boiler with accessory receiver and feed pump, was included in the show. The universal industrial need for hot water was taken care of by the display of a popular multi-coil water heater connected to an insulated 250 gal. storage tank.

Perhaps the most effective unit for attracting visitors to the gas industry space was an operating table of miscellaneous refractory-lined burner applications. Here included were functioning units for: continuous flame hardening, spot heating, production soldering, and varnish cooking. A radiant burner was aimed at a laboratory radiometer which spun furiously despite the fact that a Pyrex plate was interposed between the burner and the instrument to block off all convected or conducted heat from the burner and to permit transmission to the instrument *only* of the radiant heat output.

Control and Burner Equipment

Finally, other miscellaneous control and burner equipment exhibited to the mechanical engineering fraternity attending the Power Show included: mercury-bulb temperature controls (both recording and indicating) for temperatures up to 1000° F.; a soldering furnace which protects heated coppers from oxidation irrespective of conditions of use; °low-pressure-air proportioning mixers and high-pressure-gas venturi mixers of ingenious new designs introduced just this year; ribbon burners with adjustments for flame height distribution; city-gas-oxygen cutting torches (both hand operated and attached to machine guides); new burner tips combining the virtues of conventional screen-tip and flame-retention designs; and multi-port burner heads of extreme precision, some with various groups of the clustered ports separately manifolded for manual variation of the aggregate flame shape obtained.

The cooperating firms manufacturing the above equipment were: American Gas Furnace Co., The Bryant Heater Co., Fieser-Lundt, Inc., Gehnrich & Gehnrich, Inc., General Gas Light Co., The Harris Calorific Co., Charles A. Hones, Inc., The C. M. Kemp Mfg. Co., Mears-Kane-Ofeldt, Inc., The Partlow Corp., Ruud Manufacturing Co., The Selas Co., and Surface Combustion Corp. The A. G. A. committee in charge of the display was chairmanned by John A. Malone, Consolidated Edison Company of New York, Inc., who was assisted by Carl Wierum, The Brooklyn Union Gas Co., and Harry W. Smith, Jr., American Gas Association. L. G. Barrow, of the display department of Consolidated Edison Company of New York, Inc., handled the details of booth construction and decoration.

Conferences on Industrial and Commercial Sales

ANNOUNCEMENT has just been received from H. Carl Wolf, president of the Atlanta Gas Light Company and chairman of the Industrial and Commercial Gas Section of the American Gas Association, that the time and place has been selected for both of the 1941 national A. G. A. sales conferences in the non-residential bracket. The A. G. A. Conference on Industrial Gas Sales will be held on Thursday and Friday, March 13 and 14, 1941, at the Lord Baltimore Hotel, Baltimore, Md. The A. G. A. Hotel, Restaurant and Commercial Sales Conference is scheduled for Thursday and Friday, April 24 and 25, 1941 at the Palmer House, Chicago.

This is the first time that the A. G. A. Industrial Sales Conference has been scheduled on the Atlantic seaboard.

Mathematical Poser: Take one industrial gas sales territory; *add* production for national defense; *subtract* personnel lost by draft; *multiply* management's worries; *divide* interest between "normal" and "war" business; *integrate* with equipment makers' ability to deliver; *differentiate* between plants to be served first and others. Result: the most important job industrial gas has ever had to face.

♦

So, "Happy New Year," fellas! . . . If you can stand the gaff . . . Of forty-one's war worries . . . At competitors you'll laugh . . . We have the fuel and talent . . . And the biggest market yet . . .Now's our chance to show our stuff . . . And lasting new load get.

♦

Take a tip from your wife or girl friend, and sell beauty to your counter cooking customers. F'rinstance, are you making sure that the swanky, svelt, streamlined griddles you install (or have installed) are *connected with chromiumed, nickeled, or at least painted pipe*—on a stylish par with the appliance itself? We've seen enough of ugly tees and ells on "gift wrapped" appliances—and believe the customer's customers feel similarly. Trimmer piping needn't cost much, sells your service as a utility, makes a swell point for your salesmen—and damn well should have been stressed more, long before this.

Who says we ain't got glamour? Voted "Best Drag" at the wind-up dance of the U. S. Naval Academy's football season—Washington Gas Light's very own (and very pretty) Marjorie Richey, Secretary in the *Industrial* Division.

♦

80 Dept. of Health Inspectors in the 5 boroughs of New York City carry copies of our A. G. A. Volume Water Heating Committee's report on 180° hot water for dish-rinsing and sterilization. That doesn't hurt the local commercial gas load. How about your Health Department? Drop in and discuss the report with them.

♦

Honest anyway: One of our good committeemen writes, "The Such-and-such Report looks very comprehensive—which is another way of saying I haven't read it yet."

♦

Your town is industry conscious—today more than ever before. And your advertising department might now lend an ear to industrial themes *for newspaper campaigns*. Heed Consolidated Edison of New York—running full page splurges on financing plans "for our business and manufacturing customers," on electric and gas service in connection with under-river traffic tunnel construction and operation, on *industrial* themes in *general consumer* media. Mightn't your population be impressed with your part in your town's industrial preparedness?

♦

"55% over 1929, biggest year yet, for industrial and commercial gas," say the national statistics just released for 1940. Further, "It is estimated that the *normal* use of gas by business and industry in 1941 will even top this by 10%—supplemented by great quantities used for purely defense purposes." No ceiling in sight yet, boys—we're still in the right business.

♦

Publicity is the art of telling your readers what they *want* to know; advertising the art of telling them what they *ought* to know. Selling is the art!

♦

Pin the first gold star of 1941 on Magic Chef's "gear-shift" heavy-duty broiler mechanism—for a simple design quirk that (1) eliminates grease-collecting Goldbergs in the broiling space, (2) could be operated by Mrs. Astorbilt with the little finger on the left hand, (3) sears only the steak and not the chef's hand, and (4) adds as much to the appearance of commercial range banks as it does to their convenience. If I were a salesman, I could really talk about this feature.

INDUSTRIAL AND COMMERCIAL NATIONAL ADVERTISING FOR JANUARY

The National Advertising Committee of the Industrial and Commercial Gas Section, J. P. Leinroth, chairman, and F. B. Jones, vice-chairman, announces that full-page advertisements will appear in the trade and business magazines listed below during the month of January. These advertisements, which will appear in 16 publications reaching a total audience of 288,587, are prepared in cooperation with the Committee on National Advertising as a part of the Association's national advertising campaign.

General Manufacturing

BUSINESS WEEK (Jan. 11)—"Step up production with modern high speed GAS equipment"—a direct appeal to management to look into the advantages of GAS for most industrial processes.

Ceramic Industry

CERAMIC INDUSTRY—*Business Week* advertisement entitled: "Step up production with modern high speed GAS equipment"—plus tie-in paragraphs on the ceramic field.

Hospital Field

MODERN HOSPITAL—"Gas is best fuel for cooking in famous Pennsylvania Hospital"—here is the oldest existing hospital in the United States, thoroughly modern in all respects, equipped with the finest GAS fired equipment—and obtaining results.

Food Industry

FOOD INDUSTRIES—"It's pretty . . . . but is it art?"—a story of better results in coffee roasting with GAS.

BAKERS' WEEKLY (Jan. 4)—"The famous Horn & Hardart 'Automats' use GAS in their baking commissary" . . . . this great food chain chalks up another real story for GAS.

Metals Industry

THE IRON AGE (Jan. 2*)
STEEL (Jan. 6*)
METALS & ALLOYS
METAL PROGRESS
INDUSTRIAL HEATING
HEAT TREATING & FORGING
(*annual review number)
—*Business Week* advertisement entitled: "Step up production with modern high speed GAS equipment"—plus tie-in paragraphs on specific results shown by plants in the metals field.

Restaurant Field

AMERICAN RESTAURANT—"Frye Hotel, Seattle, gets better performance, greater economy with GAS cooking equipment"—another up-to-the-minute story, this time from the Far West.

CHAIN STORE AGE—(Fountain and Restaurant Section)—"Good food, quick service, big turnover when modern GAS appliances do your counter cooking"—a general story, but a direct one, on the advantages of GAS in the Chain Store field.

Processing Field

CHEMICAL AND METALLURGICAL ENGINEERING—Business Week advertisement entitled: "Step up production with modern high speed GAS equipment"—plus column of tie-in paragraphs telling the story of GAS in the processing field.

It's another month's portfolio on the advantages of GAS and the benefits others are receiving from the use of modern GAS equipment—all of which can be brought to bear on new industrial and commercial gas prospects.

A. G. A. Research on Pipe Coatings and Corrosion Wins National Recognition

- **For more than a decade and a half, the Technical Section has been conducting an intensive laboratory and field study of pipe coatings and corrosion—since 1929 under the capable direction of Dr. Scott Ewing at the National Bureau of Standards in Washington, D. C. Dr. Ewing's valuable experience and specialized knowledge have been recognized by the United States Government and his services have been loaned for important national defense work in the Panama Canal Zone.**
- **In the accompanying article, Mr. Turner, past chairman of the Pipe Coatings and Corrosion Committee, presents a history of Dr. Ewing's accomplishments which have made him one of the country's best known soil corrosion specialists. This article has been reviewed by F. M. Goodwin, immediate past chairman of the Technical Section, chairman of the Advisory Committee, and chairman of the Distribution Committee in 1929 when Dr. Ewing was engaged. It has also been reviewed by Jacob D. von Maur, of Toronto, father of the Distribution Conferences, who was largely instrumental in launching the corrosion work. Mr. von Maur's comment, providing additional facts, is reproduced on the next page.**

By CHARLES F. TURNER

Chief Chemist, The East Ohio Gas Co., Cleveland, Ohio

THE American Gas Association has played a large part in establishing a scientific approach to the problem of underground corrosion. In 1925, soon after the first Distribution Conference was held, it became evident from responses to the Chairman's requests for live topics for discussion that the subject of pipe coatings was receiving the attention of engineers and executives throughout the gas industry.

In 1927 a subcommittee of the Distribution Committee was formed to investigate pipe coatings and gather data regarding their general performance and the qualities which a good protective should have. A questionnaire was sent out to members of the Distribution Committee who were asked questions intended to develop information on the extent to which protectives were being used, the types most commonly applied, and their performance in terms of added years of service.

The program of the 1928 Subcommittee on Protective Coatings, as this committee was then called, had among its objectives the compilation of a bibliography and a study of all existing data on protective coatings for underground piping. This study included not only a record of the progress which had been made in the gas industry but by such organizations as the National Bureau of Standards, American Petroleum Institute, Natural Gas Industry, Cast Iron Pipe Research Association, American Water Works Association, etc.

There followed in the report at the 1928 Distribution Conference a review of the accomplishments of the Subcommittee on Protective Coatings and an account of experiences and test methods in use by various gas companies throughout the United States and Canada. Certain facts began to emerge from the data and information assembled but the problem of compiling well-substantiated data, correlating many apparently disconnected bits of information, and promoting a concerted program of research among the various Association company members soon took on the aspects of a major undertaking. Perhaps the position in which the subcommittee found itself and its thoughts on what should next be done can best be expressed by quoting from the Chairman's report at the 1929 Distribution Conference:

"Owing to the great interest shown in connection with the subjects of Pipe Coatings and Corrosion . . . . this subcommittee has gathered and submitted to the general committee all information available on the subjects. After this work was done, it was realized that in order to accomplish a really definite result, the entire time of at least one man should be devoted to the work. Therefore, a recommendation was made by the Distribution Committee last year which called for an appropriation of $10,000 to be expended for research work during this Association year which was approved by the Executive Board late in 1928. Since that time the activities of your subcommittee have been principally confined to efforts to get the research under way."

For some years previous to the formation of the Subcommittee on Protective Coatings —later to be known as the Subcommittee on Pipe Coatings and Corrosion—the chief of the Electrolysis Division of the National Bureau of Standards, K. H. Logan, with his staff, had been investigating soil action on various metals at numerous points in the United States. Mr. Logan had initiated a very comprehensive investigation of soil corrosion on ferrous materials as early as 1920, and during the succeeding years he had gathered much valuable data on the behavior of these materials under varying soil conditions.

The American Petroleum Institute likewise had been conducting investigations of soil corrosion and ways of inhibiting its action on pipe line networks. In 1928 the

Dr. Ewing addressing the recent A. G. A. Convention in Atlantic City

American Petroleum Institute authorized an appropriation for the appointment of a Research Associate at the National Bureau of Standards who was to work systematically on corrosion problems under the direction of the Bureau and the American Petroleum institute Corrosion Committee.

It was only natural, therefore, that the American Gas Association should turn to Mr. Logan for advice following the action of the Executive Board in approving the recommendations of the Distribution Committee and in setting aside funds for carrying them out. Quite a number of candidates for the position of Research Associate were reviewed and their qualifications carefully studied. Dr. Scott Ewing, who under Mr. Logan had had considerable experience of the kind needed, was finally chosen and was appointed the American Gas Association's Research Associate at the Bureau of Standards on April 1, 1929.

That the selection was a fortunate one for the Association and for the gas industry is attested by the reputation which Dr. Ewing has built up among students of corrosion problems, the contributions he has made to the fund of knowledge of corrosion fundamentals and the recognition which has now come to him. Modest and unassuming, he is highly respected by all who have come in contact with him. He is always receptive to suggestions and theories but firm in his own convictions and not easily swayed by argument. His training in chemistry, physics, electricity and mathematics combined with his long experience in corrosion problems make him one of the country's outstanding authorities on soil corrosion. A list of his papers and reports and his book on "Soil Corrosion and Pipe Line Protection" is to be found at the end of this article.

Dr. Ewing's Work

Dr. Ewing's first task was to make a general survey of typical methods of manufacturing and applying coatings; to prepare specifications for and supervise the field testing of coatings; to make field inspections of coatings where advisable and to devise means of rating and evaluating coatings examined. It was the feeling of the members of the Distribution Committee and of the Subcommittee on Pipe Coatings and Corrosion that specimens of the most representative coatings of the day should be prepared and buried in a number of soils throughout the country at as early a date as possible in order that the soils might be at work on them while other work was getting under way. Meanwhile, Dr. Ewing could busy himself with a study of some of the fundamentals involved in the general field of underground corrosion and prepare to correlate his findings with that of other organizations.

In the summer of 1929 five sets of pipe specimens, each specimen bearing a different type of coating applied by its manufacturer, were buried in fourteen locations in the United States. The first article prepared for publication by Dr. Ewing described this part of the program and is entitled, "The Preparation and Burial of the Specimens for the American Gas Association Coating Tests."

The first set of specimens was removed by Dr. Ewing during the summer of 1930 and after a minute examination of the soils, the coating specimens, and the pipe nipples, he rendered a report on his findings. The report was entitled, "American Gas Association Studies of Coatings for Pipe Line —Some Properties and Characteristics of Coating Materials and Specimens Removed in 1930." The second set was removed in 1932, the third in 1934, the fourth in 1935; one set still remains for examination at some future time.

In addition to examination of American Gas Association specimens, as well as those of the American Petroleum Institute removed at about the same intervals, there were many other studies, largely of a laboratory nature, which Dr. Ewing made. Reports on these investigations have been made either at Distribution Conferences, annual conventions, or before other trade association meetings.

Publication of the results of examination of the four sets of coating specimens did much to aid the manufacturer of coatings interested in improving the quality of his product. They helped the engineer faced with the problem of selecting a coating which would prove most economical under his particular conditions. Detailed reports on the condition of the several coatings after successively longer lengths of burial disclosed certain fundamentals which have become more or less axiomatic in present day coating practice. They did much to debunk extravagant claims made by some coating manufacturers and they showed the coating user the fallacy of continuing many of his practices of long standing.

Not only did these reports show the basic requisites for proprietary coating materials but they showed the need for extreme care and intelligent handling in their application if they were to render the service expected of them. Most important, they showed that the value of protective coatings is in most cases directly proportional to their cost; the cheap materials, cheaply applied, do not afford the corrosion-free pipe life which may be obtained from the more expensive types.

Corrosion Book Published

Some ten years after the Distribution Committee initiated its program of studying pipe coatings, Dr. Ewing marshalled all of the facts, observations, field and laboratory data, recommendations, and underlying theories which had been collected over the years and wrote a book entitled "Soil Corrosion and Pipe Line Protection." This book was made ready for distribution in the fall of 1938 and is today an outstanding contribution to our knowledge of soil corrosion and ways of abating it.

Publication of Dr. Ewing's book brought to a logical conclusion a long-range research initiated by the technical men of the American Gas Association, and carried on by Dr. Ewing with the guidance and help of the Corrosion Committee. The demand for authentic information on corrosion problems is evidenced by the fact that some two thousand copies have found their way into the hands of gas, water, oil distribution engineers, public libraries and foreign countries. It has become a handbook of useful information wherever corrosion abatement is studied.

During the past several years the term

A Sidelight on the Corrosion Study

JACOB D. VON MAUR, engineer of distribution for the Consumers' Gas Company of Toronto, who as a past chairman of the A. G. A. Distribution Committee, played a large part in the organization of the corrosion study, reviewed Mr. Turner's article and added the following comment:

"I was impressed as I read over the record of advancement that has been made during the last sixteen or seventeen years in this subject of Corrosion. I have just reread a portion of the Report of the Distribution Committee for the 1924 Convention and it is interesting to note that the paramount question in the minds of distribution men at that time, was whether we should use wrought iron or steel pipe and what were the merits of using galvanized pipe. We all overlooked the fact that it was not so much a question of what kind of pipe we used as what protection we gave the pipe which was used. A summary of the answers given by twenty-eight companies relative to the pipe coverings used for service pipe, is as follows:

No covering	12	42.8%
Galvanizing	4.5	16.1%
Hickenlooper	2	7.3%
Tar, cement and kerosene (hot)	1	3.5%
Tar formula	2	7.3%
Coal tar, lime and cement (hot)	1	3.5%
Asphaltum	2.5	9.0%
Gilsonite, paint and field application of crude oil	1	3.5%
4 applications of pitch and gas tar mixture with spiral wrappings of 3-inch strips manila paper	1	3.5%
Red lead and linseed oil	1	3.5%
	28	100.0%

It is only by reviewing such facts as the above that we can appreciate the work done by Dr. Ewing and his associates during the life of the Distribution Conferences."

"cathodic protection" has been used with increasing frequency by corrosion investigators. It denotes a type of protection for buried metallic structures which has been rapidly gaining in popularity, particularly for steel pipe systems conveying oil and gas. In recognition of this trend the Subcommittee on Pipe Coatings and Corrosion has directed Dr. Ewing's activities for the past two years toward an investigation of some of the more important "unknowns" of this method.

One of the most important of these is the minimum amount of current which will afford complete protection from soil attack under varying soil conditions and characteristics. Dr. Ewing has developed in the laboratory a way of determining what this minimum current should be in each instance. Preliminary field tests indicate that it will work in the field but needs further simplification to make it practical.

Further work on this and other problems in connection with the development of fundamental information on the behavior of pipe lines under cathodic protection was included in the committee's program for the present Association year. Since Dr. Ewing has left on his new assignment other plans are being formulated to bridge the gap until his return.

Dr. Ewing's final report was made at the recent Atlantic City convention. It would not be in the best interests of National Defense to enlarge on the work he will be doing in the Canal Zone but it will be of a nature which will enrich his own experience and make him the more valuable to the gas industry upon his return to it. The best wishes of his associates and his many friends go with him.

Bureau of Mines Reports Extensive Fuel and Mineral Studies

THE exploration of various ore deposits in the United States, with the resulting determination that a number of them might be sources for certain strategic minerals in an emergency; the development and improvement of methods for producing high-purity electrolytic manganese and chromium, and for recovering nickel, copper, and platinum metal from some complex domestic ores; and the acquisition of special economic data on minerals of importance to the national defense program were among the outstanding accomplishments of the Bureau of Mines for the fiscal year 1940, according to the annual report of Dr. R. R. Sayers, director of the Bureau, to Secretary of the Interior Harold L. Ickes.

Among the Bureau's other national defense activities were: the conducting of tests of American coals to find their value as a source of motor fuel and lubricants; production of benzol, toluol, and xylol (necessary for explosives) as a byproduct of the coking of coal; metallurgical investigations of the production of electrolytic manganese and magnesium metal; collection of economic and statistical data on scrap metals; survey of aviation gasoline; expansion of information on demolition explosives; substitution of American non-metallic minerals for a wide variety of commodities imported from abroad; and emphasis on the instruction of first-aid teachers who could train civilians in an emergency.

During the past year especial efforts were devoted to ascertaining the coking properties of America's low-rank coals to establish the extent to which they can replace steam and coking coals of higher rank and dwindling supply. The Bureau also tested coals from seven States to find how readily they liquefy to produce motor fuel and useful byproducts of the hydrogenation process.

Meanwhile, the Bureau's petroleum engineers studied energy relationships to find how the greatest amount of petroleum can be produced with the least waste of natural energy, oil, and gas. Subsurface and surface samples of oil and gas mixtures were collected from flow systems of wells and analyzed; field tests were made with the Bureau of Mines-American Petroleum Institute pressure core barrel, and operation of that instrument was improved; laboratory determinations of characteristics of hydrocarbon mixtures were continued; and studies were made of one of the older Oklahoma fields that helped to explain why many redrilling campaigns in similar areas have been successful.

The Amarillo helium plant, according to the Bureau's report, produced nearly 9,500,000 cubic feet of salable helium during the fiscal year 1940, or about 50 per cent more than in 1939. Approximately 84 per cent of the output was supplied to the Government and the other 16 per cent was sold for medical, scientific, and commercial use. More than 450 stations of the Weather Bureau now use helium in meteorological balloons, and estimates indicate that the helium sold for medical use provided at least 34,000 hours of treatment. Figures compiled by the Bureau show that the Amarillo plant has produced 100,012,000 cubic feet of helium during its operating life of a little more than 11 years. Even this production is less than 50 per cent of the potential output for an equal period if the plant were run at its rated capacity.

Pipe Coating and Corrosion Reports by Dr. Scott Ewing

Papers

The Preparation and Burial of the Specimens for the American Gas Association Coating Tests—A. G. A. Proceedings, 1930; pp. 1310-17.

A. G. A. Studies of Coatings for Pipe Lines—Some Properties and Characteristics of Coating Materials and Specimens Removed in 1930—A. G. A. Proceedings, 1931; pp. 774-804.

A. G. A. Studies of Coatings for Pipe Lines—Inspection and Test of Specimens Removed in 1932—A. G. A. Proceedings, 1932; pp. 741-759.

Corrosion Surveys for Transmission Lines and Distribution Systems—A. G. A. Proceedings, 1934; pp. 836-862.

Observations on Soil Corrosion Mitigation in the Gas Industry—A. G. A. Proceedings, 1935; pp. 630-635.

I. Field Tests of Pipe Coatings—Report on Specimens Removed in 1935—A. G. A. Proceedings, 1936; pp. 627-647.

II. Laboratory Tests of New Pipe Coatings—A. G. A. Proceedings, 1936; pp. 648-657.

Corrosion of Metals in Soils as a Factor in the Selection of Pipe Materials—A. G. A. Proceedings, 1937; pp. 789-798.

Recent Developments Relating to Soil Corrosion and Pipe Coatings—A. G. A. Proceedings, 1938; pp. 795-800.

The Copper-Copper Sulfate Half-Cell for Measuring Potentials in the Earth—A. G. A. Proceedings, 1939; pp. 624-634.

The Cadmium-Cadmium Sulfate Half-Cell for Measuring Potentials in the Earth—A. G. A. Proceedings, 1939; pp. 635-640.

Determination of the Current Required for Cathodic Protection—1940 Distribution Conference.

Electrical Bonding for Cathodic Protection of Pipe Lines—1940 Convention.

Books

Soil Corrosion and Pipe Line Protection—August, 1938.

Gas Practice Class Now Forming

A NEW class is now being formed in the course in American Gas Practice given by the home study department of Columbia University. Employees who would like to acquire a more thorough knowledge of the gas industry are invited to enroll. The course gives a firm foundation in advanced gas practice and has already proved its value to many in the gas industry. Prof. J. J. Morgan is in charge of the course.

The tuition is $60.00 and many companies refund at least part of this amount to each employee who has completed the course with satisfactory grades. Each candidate should have the equivalent of a high school education and should know elementary chemistry and physics.

A prospectus outlining the course and application forms may be obtained from your own company or from the American Gas Association, 420 Lexington Ave., New York, N. Y.

Laboratories

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R. M. Conner, *Director*
W. H. Vogan, *Supervisor, Pacific Coast Branch*

Standards for Gas Counter Appliances Distributed for Criticism

THE last few years have witnessed remarkable progress in the development of many types of gas-fired counter appliances. This, together with the very satisfactory service of A. G. A. Testing Laboratories tested and approved hotel and restaurant ranges, has resulted in demand for similar certification for other commercial gas-burning equipment. To meet this need, the Subcommittee on Approval Requirements for Gas Counter Appliances, under the chairmanship of T. J. Gallagher, manager, commercial sales department, The Peoples Gas Light and Coke Company, Chicago, undertook a comprehensive investigation of commonly used types of such equipment. These included gas coffee brewers, coffee urns, food and dish warmers, waffle bakers, hot water immersion sterilizers, hot plates, and griddles.

Based on the data secured, which included extended studies of performance of many styles of contemporary models, Mr. Gallagher's committee recently completed the most extensive set of approval standards yet prepared covering such equipment. General provisions applying to construction are of particular interest to manufacturers, as well as consumers.

Standards of Safety and Convenience

All of the standards are in keeping with latest concepts of safety and convenience. For example, every thermostatically controlled counter appliance is required to be equipped with an automatic pilot which will shut off the gas supply if means for ignition of the burners become inoperative. To facilitate servicing all thermostats, automatic pilots and their controls and other accessories, as well as gas supply lines and electrical equipment which may require adjustment in the field, are required to be readily accessible for adjustment when the appliance is installed in a normal manner. General assembly must be of a neat and workmanlike character with all parts well fitted and tightly attached to give rigidity. In keeping with modern concepts of design and beauty, it is further recommended that wherever possible materials such as stainless steel, nickel, and chromium plated trim or porcelain enamel be used.

It is believed these new specifications provide adequate national standards for gas counter equipment. However, in line with customary procedure they have been placed in the hands of the industry for criticism and suggestions. To insure that all comments may be given full consideration, it is requested that they be submitted to R. B. Harper, Chairman, A.S.A. Sectional Committee, Project Z21, A. G. A. Approval Requirements Committee, in care of the American Gas Association Testing Laboratories, 1032 East 62nd Street, Cleveland, Ohio, on or before January 31, 1941. It is anticipated that these new standards will become effective as American Standard on January 1, 1942.

Application for Approval Revised

ON December 2, 1940, Application for Approval or Listing forms for the calendar year 1941 were distributed to all manufacturers of gas appliances and accessories, as well as to dealers to whom extensions of approval have been granted by the A. G. A. Testing Laboratories. In order that products of these manufacturers and dealers may be listed in the January 1, 1941, Directory of Approved Gas Appliances and Listed Accessories, these applications must be duly signed and returned to the Laboratories on or before that date.

Of particular interest to all applicants are two modifications of the current Application, both of which emanated from suggestions originated by appliance manufacturers and endorsed by the Board of Directors of the A. G. A. E. M. To avoid confusion between products manufactured for sale under a dealer's name, with those sold under the manufacturer's own trade mark, it was suggested that name plates of the former bear the additional wording: "Manufactured For." This suggestion was subsequently approved by the Laboratories Managing Committee.

In order that this practice may be made effective immediately and without undue inconvenience to manufacturers or dealers, the Laboratories Managing Committee agreed to include an appropriate clause to cover it in the 1941 Application for Approval or Listing. New dealers requesting Certificates of Approval for approved equipment manufactured for sale under their name and who have had no previous business with the laboratories will be required to include the phrase "Manufactured For" on their name plates immediately. Dealers who wish to renew existing certificates will be asked to comply therewith as soon as convenient, and not later than January 1, 1942. The new ruling does not affect manufacturers producing equipment for sale exclusively under their own name or trade mark. However, where they do produce appliances marked with the dealer's name, they are requested to apprise these dealers with the intent of this revision.

The second revision to the Application for Approval or Listing relates to the dating of Certificates of Approval covering appliances tested for compliance with requirements in advance of their effective date. Due to the fact that each successive edition of the various approval requirements usually embodies more rigid specifications than those it supercedes, as well as the fact that new standards do not become effective until nine months after they have been distributed to the industry, it was proposed that some means be adopted to encourage manufacturers to comply with these latest standards before they became mandatory.

Under the previous arrangement, manufacturers could, if they so elected, submit their products for approval under new requirements not yet effective. Certificates of Approval, however, were dated as of the time of test. Furthermore, renewals of such approvals could be extended for not more than five years from the date of such tests. As a result, the Laboratories Managing Committee ruled that to encourage manufacturers to secure approval under newly adopted requirements which were not yet in effect, certificates for compliance therewith should be dated as of the effective date of such standards. It was felt that this plan would be more equitable to progressive manufacturers and in addition would promote better equipment. It was also agreed that this provision should be included in the 1941 Application for Approval or Listing.

New Gas Appliance Tubing Standards

RESPONDING to the need for specifications covering construction and performance of a new type of gas appliance connector now coming into general use, the Subcommittee on Listing Requirements for Semi-Rigid Gas Appliance Tubing and Fittings under the chairmanship of C. B. Wilson, new business manager, Arkansas Louisiana Gas Company, Little Rock, Ark., recently completed a comprehensive investigation of such accessories. Results of this study, which necessitated considerable research, culminated in preparation of a set of tentative American Standard Listing Requirements for Gas Appliance Connectors of Flexible Metal Tubing and Fittings

which was published and distributed to the industry for its criticism on November 29.

These new standards apply to gas appliance connectors consisting of a suitable length of braided or non-braided flexible all-metal tubing of ½ to 1 inch nominal internal diameter provided with fittings at each end with standard iron pipe threads for connection to appliances and house piping. They do not apply to heavy-walled tubing connectors of the semi-rigid type for use with house piping. These are covered by American Standard Listing Requirements for Semi-Rigid Gas Appliance Tubing and Fittings, Z21.24-1937.

It is believed that these new requirements will adequately meet the need for national standards to insure proper construction and performance of equipment of this kind. In order that all comments from the industry may be given due consideration preparatory to placing these standards in final form, it is requested that criticisms be submitted to R. B. Harper, chairman, Approval Requirements Committee, in care of the American Gas Association Testing Laboratories, 1032 East 62nd Street, Cleveland, Ohio, on or before January 15, 1941. It is anticipated that this set of standards will become effective as American Standard on January 1, 1942.

Famous Chef Shows Albany Purveyors New Tricks with Today's Ranges

M. H. Douglas, Standard Gas Equipment Corp., offers one of Chef Novak's tidbits to T. W. Halloran, New York Power & Light Corp., Albany. Right—Chef Novak and some of the foods he used to demonstrate what can be achieved with up to-the-minute gas ranges, ovens, broilers and deep fat fryers

AS guests of the New York Power & Light Corporation, Standard Gas Equipment Corporation, and H. Horton and Company, Inc. (utility company, gas-fired kitchen equipment manufacturer, and food service equipment house, respectively), over 75 chefs, dietitians and food department managers from leading hotels, restaurants, hospitals, schools and institutions in the neighborhood of Albany, New York, attended a demonstration of up-to-date cooking methods with gas ranges, ovens, broilers and deep fat fryers presided over by Frank Novak, renowned chef, food service supervisor of Deerfield Academy, and proprietor of Novak's Cape Cod Terrace on Buzzards Bay. At the demonstration, on November 1, meats, fish, fowl, pastry, vegetables, fruits and unusual specialties were cooked on the platform of the New York Power & Light Corporation Auditorium in such a manner as to show what can be done with modern gas equipment over and above customary practice in the quantity cookery field.

In broiling, Chef Novak demonstrated how steaks can be handled in heavy duty broilers with ceramic heating elements so as to duplicate results obtainable in charcoal broiling. Olive oil or butter rubbed on steaks, chops or fish, improves both color and flavor, and sufficient preheating of the grate bars insures the most sales-winning striping or marking of meats. To preclude the breaking up of fragile foods by adherence to grate bars, he stressed the use of pans for the broiling of lobster, fish, chicken, liver, bacon, hamburger and the like.

The most dramatic feature of the demonstration, perhaps, was the low-temperature-oven roasting demonstration, in which 2 rib roasts of identical weight were cooked in 2 identical gas ovens—one adjusted for 500° F., and the other for 325° F. In one test, an 8¾ lb. cut of meat roasted to 7¼ lbs. in the low temperature oven as against 6 lbs. in the high temperature oven—a savings in meat weight of 1¼ lbs. In the other test, two 9-lb. cuts produced a 7¼ lbs. and a 6½ lbs. roast in the low and high temperature ovens respectively—a savings of ¾ lbs. of meat. Large loadings of ovens with pastry (offered through the courtesy and cooperation of Pastry Chef Mueller of the DeWitt Clinton Hotel) showed that the modern designs and degrees of temperature uniformity in today's new gas range ovens permit chefs to bake more goods per oven than they have learned is practicable with old-style ovens.

Representing the sponsoring organizations at the demonstration were: T. W. Halloran, gas sales utilization engineer, New York Power & Light Corporation, Albany; H. M. Douglas, assistant sales manager, Standard Gas Equipment Corporation, New York; Robert Hansen, also of Standard Gas Equipment; and Harry Marks, H. Horton and Company, Inc., Albany.

Tailored Heat

(Continued from page 8)

addition to heating the air and distributing it in proper volume to all rooms in the house, also clean it by means of filters and moisten it by humidifiers. Many types of dry filters and some wet filters which thoroughly scrub out dust, lint and other solid particles are available and one type will always be found on gas air conditioners. Means for automatically controlling humidity or manually controlled humidifiers are also incorporated in current models so that complete winter air conditioning is achieved with one compact unit.

Because of its increasing popularity, the field of air conditioning represents one of the greatest potentialities for enlarging the services of the gas industry to its residential customers. Developments along these lines have transformed the old central heating unit from a mere source of heat, with its usual attendant inconveniences, to an automatic means for providing warm, properly humidified, clean air in accordance with individual needs. To the average consumer, this means even more than the abolition of the traditionally bulky, grimy furnace. It means freedom from fluctuating temperatures and humidities with their attendant ill effects, not only upon his family's health, but upon his household

goods as well. It is because of the consumer's desire for these improved living conditions that his needs have been satisfied by manufacturers of gas equipment.

Throughout this discussion improvements in both construction and performance have been stressed. Let's pause briefly to consider what assurance the average consumer has in addition to the integrity of the manufacturer that the appliance he purchases will be all that it should be.

The gas industry is unique in that it is the largest and possibly the only industry in this country that has set up an entirely independent testing and research organization for developing and applying American Standard Requirements to appliances so as to insure safe and efficient utilization of gas fuel. To date 27 sets of requirements covering 37 types of appliances have been prepared. These requirements are prepared by a committee of the American Gas Association composed of representatives of gas utilities, appliance manufacturers, consumers, and general interest groups. This group is also a sectional committee (Project Z21) of the American Standards Association.

Harper Heads Committee

Under the guidance of this committee with R. B. Harper, chairman, and its Subcommittee on Approval Requirements for Central Heating Gas Appliances, the A.G.A. Testing Laboratories are continually carrying on research and gathering technical data on construction and performance characteristics of modern appliances and accessories to serve as a basis for expending, revising, and improving American Standard Approval Requirements for Central Heating Gas Appliances. As early as 1927 it was necessary for a central heating unit to comply with as many as 107 specifications. Today approximately 400 requirements governing rugged construction and safe, as well as efficient and convenient operation, must be met. Thus specifications are kept abreast of developments and encourage still further improvements.

This plan has resulted in raising the level of both construction and performance which has met with so favorable a response from consumers in the form of increased sales. This year as in the past, revised standards, which became effective January 1, 1941, will serve to stimulate more progress in design and manufacture of improved units so as to provide still better service for their users.

Through its own Laboratories' facilities and through industrial channels, the American Gas Association is carrying on and encouraging further research dealing with fundamentals of gas utilization in an endeavor to accomplish still greater improvements. Many valuable contributions from our approval requirements committee research projects have been published. Most recently studies on corrosion of heating elements and elimination of noise of burner and furnace operation have been reported.

The committee on Domestic Gas Research, under the able leadership of F. J. Rutledge, has for several years directed a carefully planned program of research on gas appliances, and a recently published bulletin on atmospheric burner design constitutes one of its most valuable contributions. This program has been further extended to include research on central heating gas appliances to supplement research and development by manufacturers and other agencies, so that leadership in automatic heating and winter air conditioning now enjoyed by the gas industry can be permanently maintained and extended.

It is with these assurances of the integrity of the gas industry that its 68 million consumers may feel confident that there is available an ideal means in gas central heating units for securing warmth in the winter because such appliances have been designed specifically for economy, beauty, convenience, cleanliness, and long life.

Personnel Service

SERVICES OFFERED

Executive Engineer—Graduate Mechanical Engineer—Experienced construction and operation of manufactured coal, water gas, and water properties, both production and distribution; soft coal and heavy oil operation in smaller plants, natural gas and reformed butane gas for natural gas peak shaving. Familiar with construction and operation of budgets and estimates. **1397.**

Mechanical engineer, 28, married, graduate of leading technology university, 1934. Excellent background of sales and application engineering in heating, ventilating and air conditioning, (gas and electric). At present employed as **sales** and **service engineer** by gas and air valve manufacturer. Experienced in combustion, space heating and gas appliances. **1400.**

Man exceptionally qualified to head **Industrial** Department of large utility, to serve a **combustion engineering** concern, or large consumer. Experienced in market surveys. Sales promotion, consulting with consumers on utilization. Authority on relative merits of fuels. Writes clearly, in non-technical style. Resourceful—friendly. Registered professional engineer, New York and Pennsylvania. **1401.**

Heating **Sales Engineer,** (48) exceptionally well rounded experience in appliance sales. 20 years industrial, housheating and other appliance experience with natural and manufactured gas. Experience covers supervision, training of men as well as other phases of selling and installing equipment. Employed but desire position with more responsibilities and possibilities. Graduate Engineer. **1402.**

Treasurer-Office Manager—Anglo-Saxon. Age 30. 3½ years experience as office manager and treasurer for a property of 3000 meters, thorough experience in the general accounting problems and in the preparation of monthly financial statements for a company of this size. Comprehensive knowledge of water gas production and distribution. **1403.**

Gas **Construction** and **Distribution Engineer,** desires change. 20 years experience. Exceptional ability to organize; supervised and installed over 1,000 miles cast iron and steel, high and low pressure mains, up to 30 inch diameter, including regulator stations and services. Also design, operation and maintenance. Considerable reproduction cost new and original cost experience. **1404.**

SERVICES OFFERED

Water Heater Sales Up 6% a Year. In four years, under my direction, a gas utility with five to six thousand meters increased its automatic **water heater saturation** from 10% to 34% on a $1.30 water heating rate. 16 years experience in building gas loads and gross and net revenues. **1405.**

POSITIONS OPEN

Industrial gas sales engineer with technical training and selling experience who can produce results in the sale of manufactured gas to a wide variety of industrial plants. Must be capable of eventually taking charge of industrial sales and service under contemplated expansion with the advent of natural gas in the spring. **0353.**

Operating Foreman. Young practical gas maker with executive ability who can take charge in foreman's absence. Must have had all 'round practical experience. To grow up with medium size Eastern company; $40.00 to start. **0354.**

Sales Agents to represent well-known manufacturer of gas space heating equipment. Territories open in Nebraska, Minnesota, Iowa, Wisconsin, Illinois, Indiana, Missouri, New York State, and Western Pennsylvania. Exclusive territory protection, no objections to man selected handling non-competitive line, remuneration straight commission. State detailed qualifications in application. **0355.**

Utilization Gas Engineer. Middle West Manufacturer has opening for a trained man who understands the development and testing of gas ranges. Good opportunity for the right man. **0356.**

Salesmen or Factory Representatives to handle additional line of ranges, product of nationally known manufacturer; one who calls on the utility companies and tank gas trade. Territories, Middle Atlantic and South Eastern States. **0357.**

Sales Manager to take charge of distribution of internationally known gas appliance. Must be able to make small investment. **0358.**

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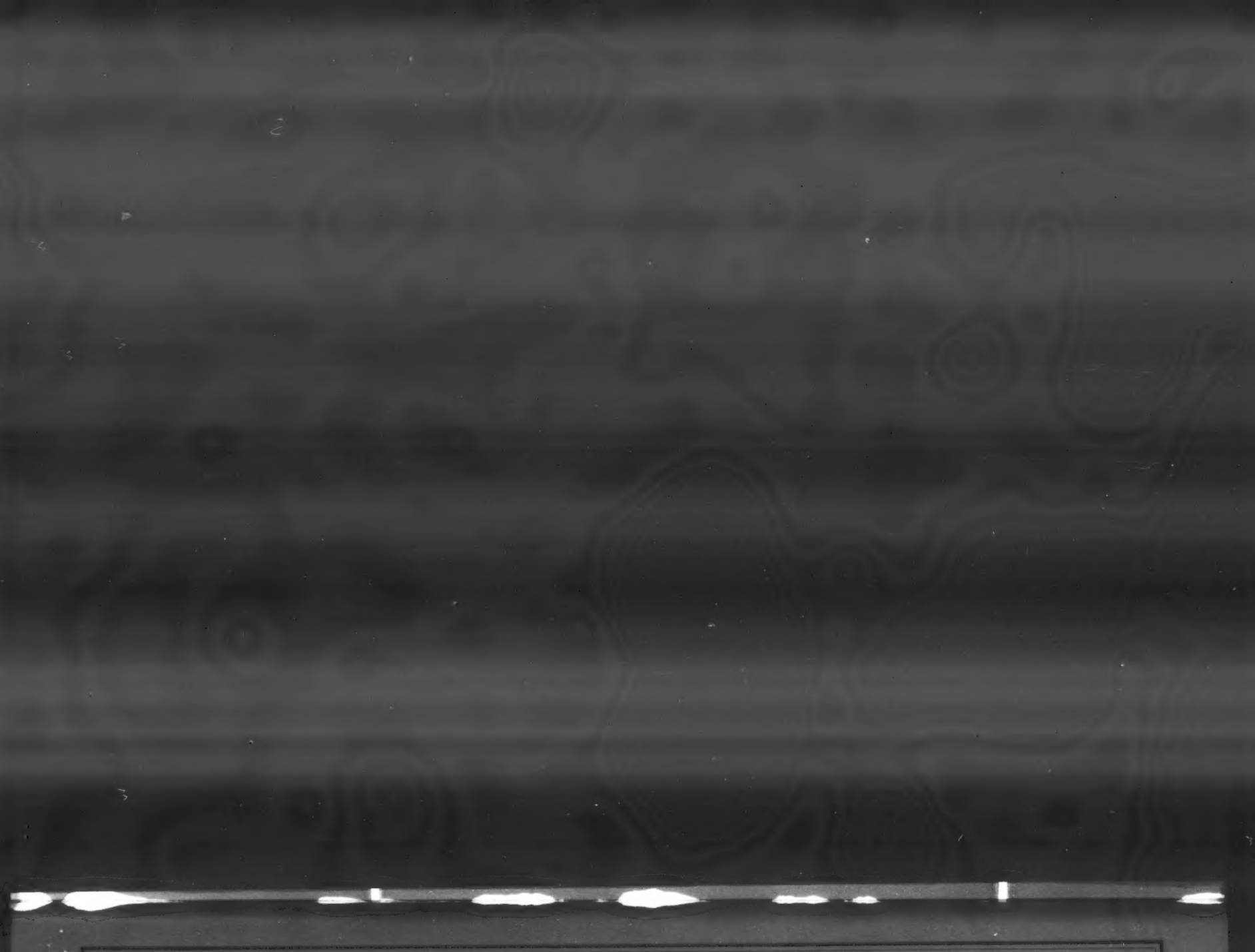
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